

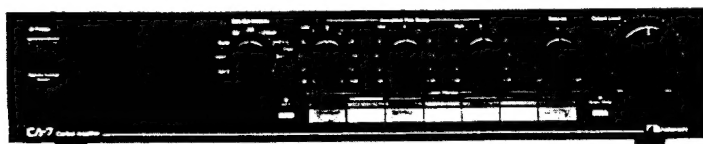


Service Manual

Nakamichi

CA-7A
CA-7
CA-7E
CA-70

Control Amplifier



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1. GENERAL

1.1. Voltage Selector

Voltage selector is installed on the rear panel for Saudi Arabia and Other versions of the Nakamichi CA-7.
This voltage selector can select either 120 V or 220-240 V at customer's disposal.

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
01	FA03556A	Package Ass'y (CA-7A)	1	02	OF04014A	Packing L	1
	FA03557A	Package Ass'y (CA-7 (Canada))	1	03	OF04000A	Packing R	1
	FA03554A	Package Ass'y (CA-7 (Australia))	1	04	OF03670A	Poly-Sheet	1
	FA03553A	Package Ass'y (CA-7 (Saudi Arabia & Other))	1	0M03457A	Voltage Seal 240V (CA-7 (Australia) & CA-7E (UK))	2	
	FA03551A	Package Ass'y (CA-7E (UK))	1	0M03642A	Voltage Seal 220V-240V (CA-7 (Saudi Arabia & Other))	2	
	FA03555A	Package Ass'y (CA-7E (except UK))	1	0D04047A	US Pack (CA-70)	1	
	FA03552A	Package Ass'y (CA-70)	1	0D04616A	Warranty Card (CA-70)	1	
	OF03995A	Carton Box CA-7A	1				
	OF03992A	Carton Box CA-7	1				
	OF03993A	Carton Box CA-7E	1				
	OF03994A	Carton Box CA-70	1				

1.2. Package Ass'y and Parts List

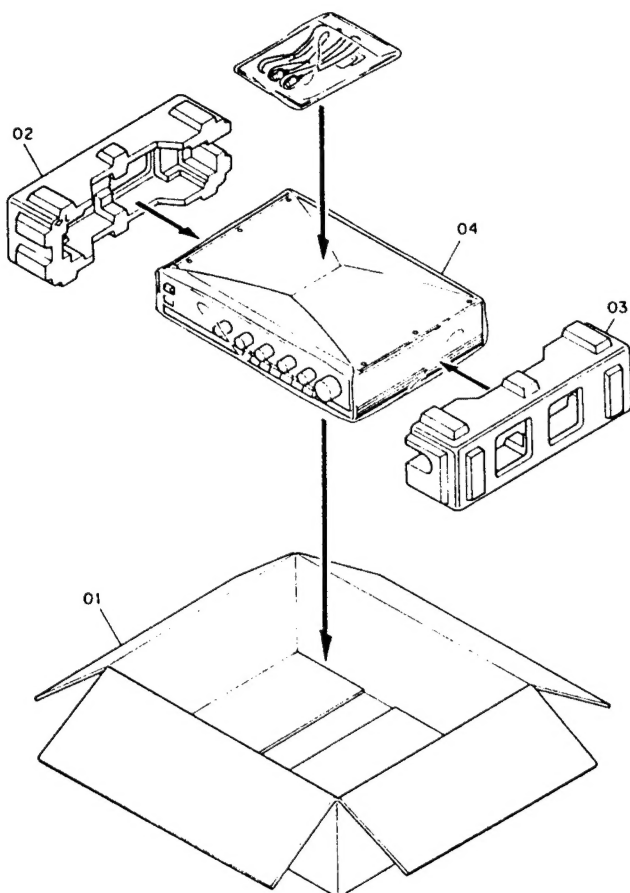


Fig. 1.1

1.3. Accessory Ass'y and Parts List

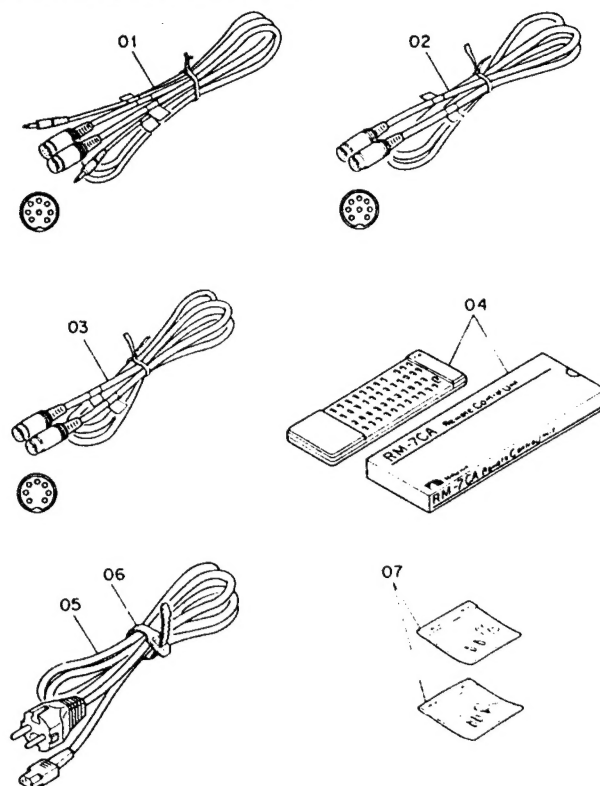


Fig. 1.2

Note: RM-7CA is supplied per unit.

Schematic Ref. No.	Part No.	Description	Qty	Schematic Ref. No.	Part No.	Description	Qty
	DA04005A	Accessory Ass'y (CA-7A)	1		DA04018A	Resistor Set	1
	DA03998A	Accessory Ass'y (CA-7 (Canada))	1		(0B20164A)	RK 3.16 1/2W G	(1)
	DA04001A	Accessory Ass'y (CA-7 (Australia))	1		(0B20169A)	RK 11.5 1/2W G	(1)
	DA04004A	Accessory Ass'y (CA-7 (Saudi Arabia))	1		(0B20186A)	RK 26.1 1/2W G	(1)
	DA04000A	Accessory Ass'y (CA-7 (Other))	1		(0B20196A)	RK 42.2 1/2W G	(1)
	DA03997A	Accessory Ass'y (CA-7E (UK))	1		(0B20214A)	RK 100 1/2W G	(1)
	DA04003A	Accessory Ass'y (CA-7E (Switzerland))	1		(0B81652A)	Socket Pin OM-1	(4)
	DA04002A	Accessory Ass'y (CA-7E (except UK, Switzerland & Germany))	1		(0D03463A)	Poly-Bag	(1)
	DA04054A	Accessory Ass'y (CA-7E (Germany))	1		0D04663A	Owner's Manual (CA-7A, CA-7 (except Canada) & CA-7E (UK))	1
	DA03999A	Accessory Ass'y (CA-70)	1		0D04761A	Owner's Manual (CA-7 (Canada) & CA-7E (except UK))	1
01	BA06562A	DIN Cord Ass'y (Deck)	1		0D04665A	Owner's Manual (CA-70)	1
	(0H05029A)	Cord Tape	(3)		0D04760A	Owner's Manual Supplement (CA-7 (Canada) & CA-7E (except UK))	1
02	(0B82777A)	DIN Cord 8P & Mini-Plug (Deck)	(1)		0D04668A	Owner's Manual Supplement (CA-7E (UK & Germany))	1
03	0B82778A	DIN Cord 8P (CDP)	1		0B04690A	Owner's Manual Supplement for Resistor (CA-7A, CA-7 (except Canada))	1
04	0B82779A	DIN Cord 7P (Tuner)	1		0D04712A	Owner's Manual Supplement for Resistor (CA-7 (Canada) & CA-7E)	1
05	DA04019A	Remote Control Unit RM-7CA	1		0D04711A	Owner's Manual Supplement for Resistor (CA-70)	1
	0B90222A	Power Cord (CA-7A & CA-7 (Canada))	1		0D03092B	Poly-Bag	1
	0B90139A	Power Cord (CA-7 (Australia))	1		0D04449A	Important Notice Card	1
	0B90229A	Power Cord (CA-7 (Saudi Arabia))	1		0D04184D	Warranty Card (CA-7A)	1
	0B90140A	Power Cord (CA-7E (UK))	1		0D04077A	Warranty Card (CA 7 (Canada))	1
	0B90154A	Power Cord (CA-7E (Switzerland))	1		0D04666A	Price Card (CA-70)	1
	0B90138A	Power Cord (CA-7E (except UK Switzerland & Germany))	1				
06	0F03887A	Cord Band (except CA-7 (Canada) & CA-70)	1				

2. PARTS LOCATION FOR ELECTRICAL ADJUSTMENT

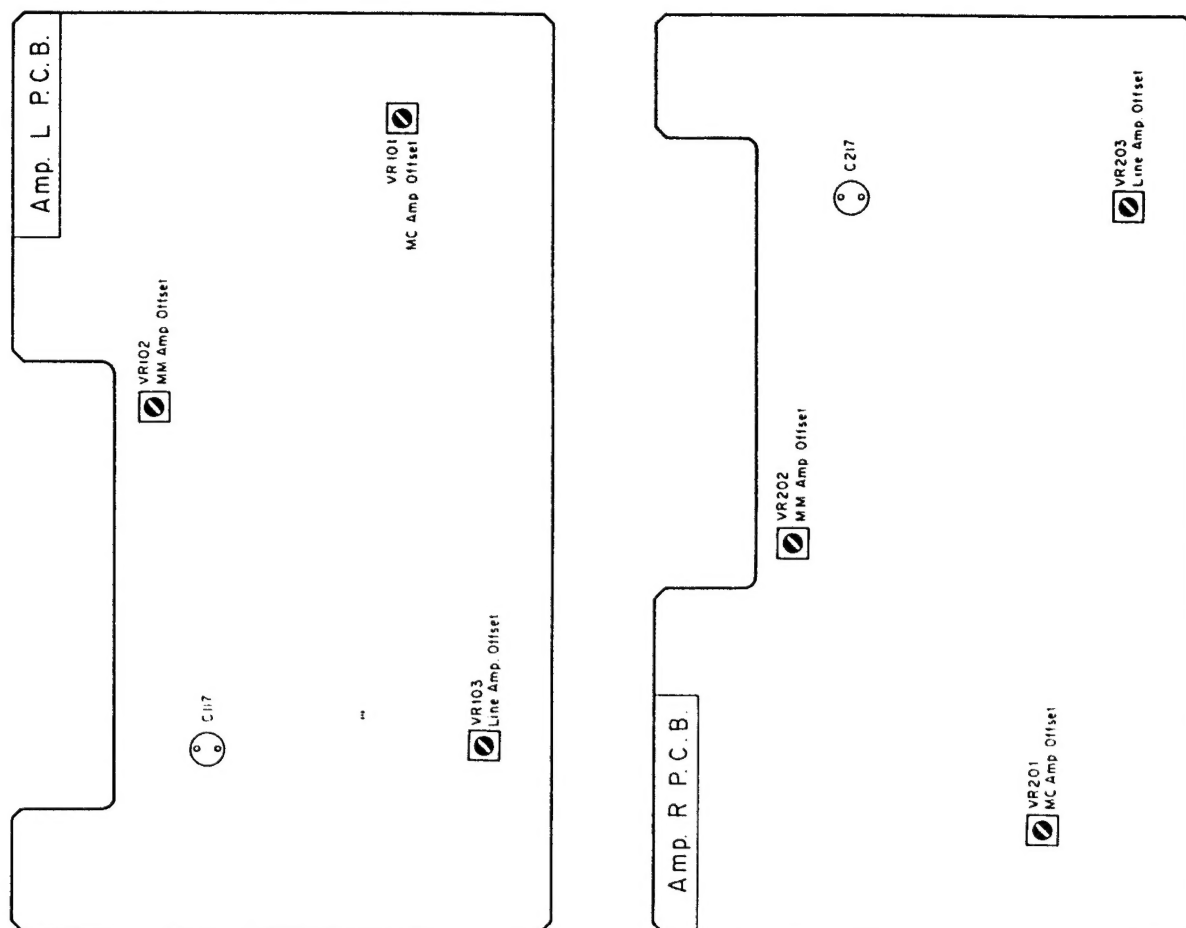


Fig. 2

3. ELECTRICAL ADJUSTMENTS

STEP	ITEM	SIGNAL SOURCE	OUTPUT CONNECTION	MODE	ADJUSTMENT	REMARKS
1	MC Amp. offset Adjustment	None	DC Milli-voltmeter to Pin 7 of IC101 (IC201) on Amp. L (R) P.C.B.	Gain Selectors - 30 dB	Amp. L (R) P.C.B. VR101 VR201	Adjust VR101 (VR201) to obtain 0 ± 50 mV on the DC millivoltmeter.
2	MM Amp. Offset Adjustment	None	DC Milli-voltmeter to Pin 7 of IC102 (IC202) on Amp. L (R) P.C.B.	Cartridge Selectors - MM	Amp. L (R) P.C.B. VR102 VR202	Adjust VR102 (VR202) to obtain 0 ± 10 mV on the DC millivoltmeter.
3	Line Amp. Offset Adjustment	None	DC Milli-voltmeter to Line output Jacks 1	Listen Monitor Selector - CD	Amp. L (R) P.C.B. VR103 VR203	<ol style="list-style-type: none"> 1. Short C117 (C217) on Amp. L (R) P.C.B. Ass'y. 2. Adjust VR103 (VR203) to obtain 0 ± 10 mV on the DC millivoltmeter. 3. Remove the short of C117 (C217).

4. MECHANISM ASS'Y AND PARTS LIST

4.1. Synthesis

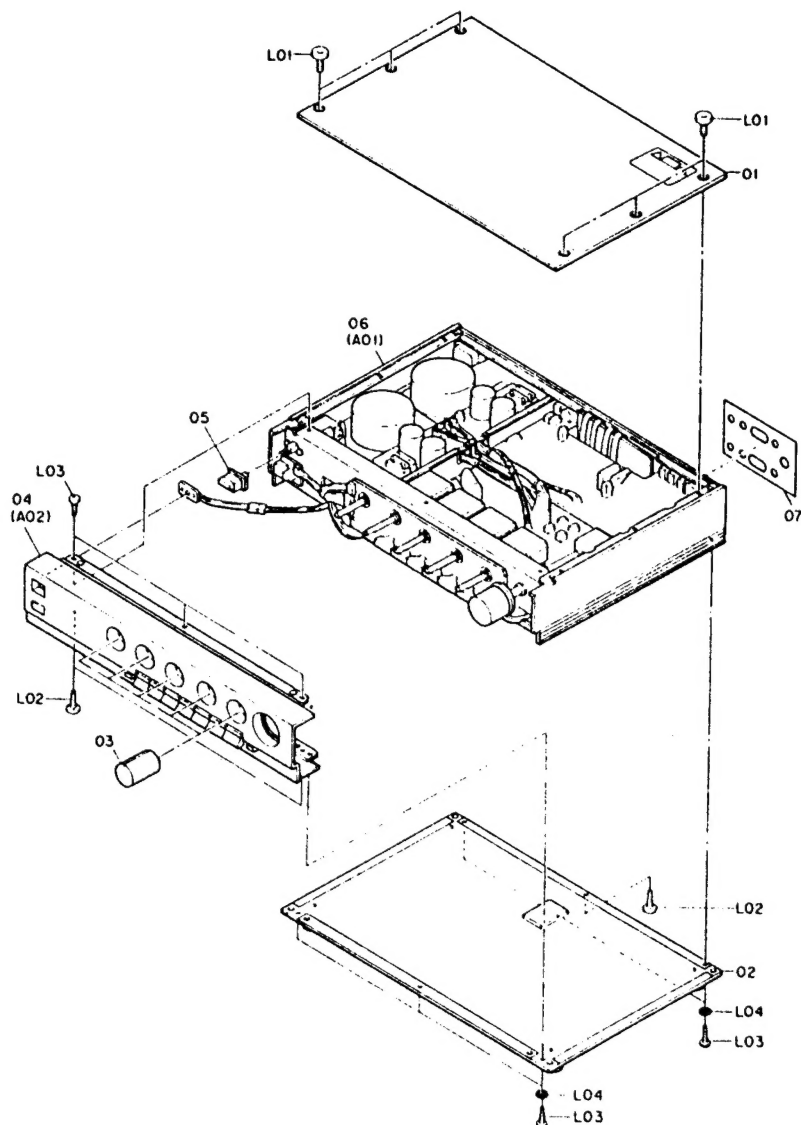


Fig. 4.1

Schematic Ref. No.	Part No.	Description	Qty	Schematic Ref. No.	Part No.	Description	Qty
01	HA05203A	Synthesis Serial No.: B10701001 - Top Cover Ass'y (CA-7A, CA-7 & CA-7E (except Germany))	1	04	HA05144A	Front Panel Ass'y (CA-7A)	1
	(OH04993B)	Top Cover	(1)		HA05143A	Front Panel Ass'y (CA-7)	1
	(OJ05266A)	Top Cover Cushion F	(1)		HA05146A	Front Panel Ass'y (CA-7E)	1
	(OJ05267B)	Top Cover Cushion R	(1)		HA05145A	Front Panel Ass'y (CA-70)	1
	(OH04993A)	Vibration Isolating Sheet TP	(1)	05	HA04799B	Power Switch Knob Ass'y	1
	(OM04377B)	Caution Label	(1)	06	JA04262A	Chassis Ass'y (CA-7A)	1
	HA05247A	Top Cover Ass'y (CA-7E (Germany) & CA-70)	1		JA04263A	Chassis Ass'y (CA-7 (Canada))	1
	(OH04993B)	Top Cover	(1)		JA04260A	Chassis Ass'y (CA-7 (Australia))	1
	(OJ05266A)	Top Cover Cushion F	(1)		JA04265A	Chassis Ass'y (CA-7 (Saudi Arabia))	1
	(OJ05267B)	Top Cover Cushion R	(1)		JA04259A	Chassis Ass'y (CA-7 (Other))	1
02	(OJ05354A)	Vibration Isolating Sheet TPJB107	(1)		JA04261A	Chassis Ass'y (CA-7E (except Germany))	1
	(OM04377B)	Caution Label	(1)		JA04285A	Chassis Ass'y (CA-7E (Germany))	1
	HA05204A	Bottom Cover Ass'y	1		JA04258A	Chassis Ass'y (CA-70)	1
	(OH04994B)	Bottom Cover	(1)	07	OM04887A	Caution Sheet (CA-7A, CA-7 & CA-7E)	1
	(OJ03564A)	Leg T-H	(4)		OM04886A	Caution Sheet (CA-70)	1
	(OJ05267A)	Top Cover Cushion R	(2)		OM03797A	Voltage Seal 240V (CA-7E (UK))	1
	(OJ05270A)	Bottom Cover Cushion S	(2)		OM04679A	SS Approval Label G	1
	(OJ05287A)	Vibration Isolating Sheet BT	(1)		OM04836A	DBP Label (CA-7E (West Germany))	1
	(OE00948A)	BT3x10 Ø Binding (Black Chromate)	(4)	L01	OH05012A	M4x8 Ø S	6
	(OM04377B)	Caution Label	(1)	L02	OE03366A	BT3x8 Ø Binding Projected (Black Chromate)	3
03	HA05126A	AFT Knob Ass'y	5	L03	OE00921A	BT3x8 Ø Binding (Black Chromate)	10
				L04	OJ05315A	Washer 4mm (Black)	5

4.2. Chassis Assy (A01)

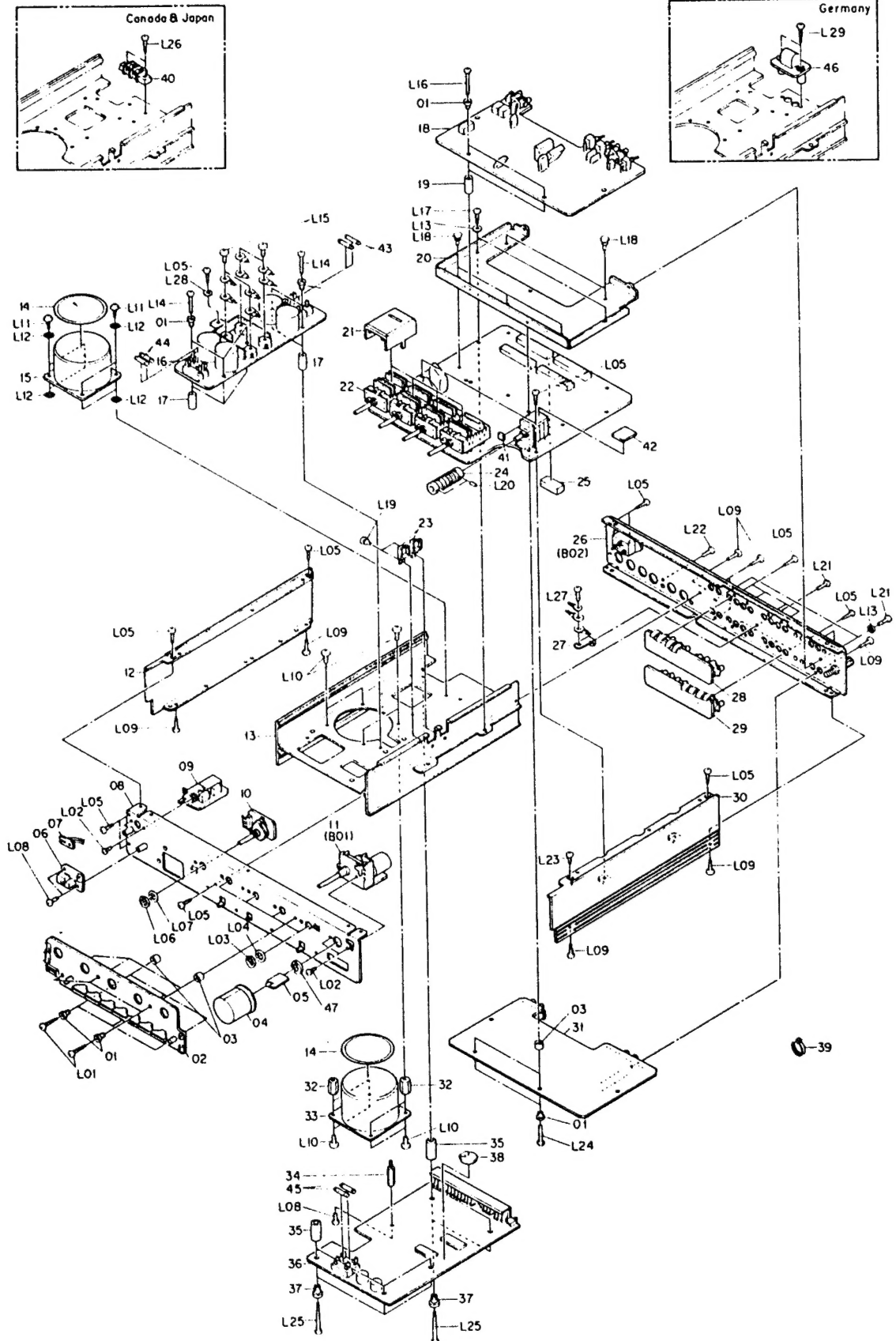


Fig. 4.2

Schematic Ref. No.	Part No.	Description	Qty	Schematic Ref. No.	Part No.	Description	Qty
A01	JA04262A	Chassis Ass'y (CA-7A)	1	36	BA06337A	Logic P.C.B. Ass'y (CA-7A & CA-7 (Canada, Saudi Arabia & Other))	1
	JA04263A	Chassis Ass'y (CA-7 (Canada))	1		BA06338A	Logic P.C.B. Ass'y (CA-7 (Australia) & CA-7E)	1
	JA04260A	Chassis Ass'y (CA-7 (Australia))	1		BA06336A	Logic P.C.B. Ass'y (CA-70)	1
	JA04265A	Chassis Ass'y (CA-7 (Saudi Arabia))	1		0J05019A	Collar Bushing NB-300	5
	JA04259A	Chassis Ass'y (CA-7 (Other))	1	37	0B90141A	Lithium Battery CR2032-FT	1
	JA04261A	Chassis Ass'y (CA-7E (except Germany))	1	38	0B90019A	Insu-Lock SKB-80	23
	JA04285A	Chassis Ass'y (CA-7E (Germany))	1	39	0B81684A	2P Terminal (CA-7 (Canada) & CA-70)	1
	JA04258A	Chassis Ass'y (CA-70)	1	40			
		Serial No.: B10701001 -		41	0J05310A	BS Damper 2VR107	2
01	0J04703A	Collar Bushing TB-300	15	42	0J05309A	BS Damper 1VR107	1
02	BA06340A	Function Switch P.C.B. Ass'y	1	43	0B90230A	Fuse 500mA (CA-7A, CA-7 (Canada, Saudi Arabia & Other))	2
03	0J05012A	Collar Bushing TA-305	8		0B08252A	Fuse T250mA (CA-7 (Australia) & CA-7E)	2
04	HA05127B	Volume Knob Ass'y	1		0B90122A	Fuse 500mA (CA-70)	2
	(0H04999B)	Volume Knob Lens	(1)		0B90231A	Fuse 1A (CA-7A, CA-7 (Canada, Saudi Arabia & Other))	2
	(0H04990B)	Volume Knob	(1)		0B08457A	Fuse T500mA (CA-7 (Australia) & CA-7E)	2
	(0H05223B)	Volume Knob Base	(1)		0B90244A	Fuse 1A (CA-70)	2
05	BA06343A	Volume Indicator P.C.B. Ass'y	1	44	0B90246A	Fuse 500mA (CA-7A, CA-7 (Canada, Saudi Arabia & Other))	2
06	BA06341A	Remote Control Sensor P.C.B. Ass'y	1		0B08252A	Fuse T250mA (CA-7 (Australia) & CA-7E)	2
07	BA06335A	Power Indicator P.C.B. Ass'y	1		0B90122A	Fuse 500mA (CA-70)	2
08	JA04267A	Front Chassis Ass'y	1		BA06688A	Line Filter P.C.B. Ass'y (CA-7E (Germany))	1
09	BA06328A	Power Switch P.C.B. Ass'y (CA-7A, CA-7 (Canada) & CA-70)	1	45	0J05258B	Selector Knob Himelon	1
	BA06568A	Power Switch P.C.B. Ass'y (CA-7 (Australia) & CA-7E (except Germany))	1	L01	0E00870A	BT3x14 @ Binding	6
	BA06589A	Power Switch P.C.B. Ass'y (CA-7 (Saudi Arabia & Other))	1	L02	0E00612A	M3x6 @ Pan (2A)	4
	BA06799A	Power Switch P.C.B. Ass'y (CA-7E (Germany))	1	L03	—	Nut (Rotary Switch)	(4)
10	BA06327A	Record Out Selector P.C.B. Ass'y	1	L04	—	Washer (Rotary Switch)	(4)
11	JA04253A	Volume Control Ass'y	1	L05	0E00921A	BT3x8 @ Binding (Black Chromate)	19
12	0H04995B	Side Panel L	1	L06	—	Nut (Volume)	(1)
13	0J05220C	Main Chassis	1	L07	—	Washer (Volume)	(1)
14	0M04860A	Power Transformer Label	2	L08	0E00896A	M3x6 @ Binding	3
15	0B50083B	Power Transformer (CA-7A & CA-7 (Canada))	1	L09	0E03366A	BT3x8 @ Binding Projected (Black Chromate)	9
	0B50084A	Power Transformer (CA-7 (Australia) & CA-7E)	1	L10	0E03310A	M4x6 @ Binding (Black Chromate)	8
	0B50085A	Power Transformer (CA-7 (Saudi Arabia & Other))	1	L11	0E03278A	BT3x8 @ Binding with Washer	4
16	0B50079A	Power Transformer (CA-70)	1	L12	0J05313A	Washer 4x8x1.0 Fiber with Adhesive Tape	8
	BA06332A	Power Supply P.C.B. Ass'y CA-7A & CA-7 (Canada, Saudi Arabia & Other))	1	L13	0E03406A	Washer 3mm (Black)	4
	BA06333A	Power Supply P.C.B. Ass'y (CA-7 (Australia) & CA-7E)	1	L14	0E00739A	M3x18 @ Binding (Bronze)	5
	BA06777A	Power Supply P.C.B. Ass'y (CA-7E (Germany))	1	L15	—	M4x6 @ Binding (Gold)	4
	BA06331A	Power Supply P.C.B. Ass'y (CA-70)	1	L16	0E03363A	M3x25 @ Binding (Bronze)	2
17	0J05008A	Collar Bushing TA-310	5	L17	0E03028A	BT3x8 @ Binding (Nickel)	2
18	BA06322A	Amp. L P.C.B. Ass'y	1	L18	0J05254A	Plastic Rivet 3x5.5	5
19	0J04704A	Collar Bushing TA-314	2	L19	0J05255A	Plastic Rivet 3x6.5	2
20	0J05221A	Shield Plate	1	L20	0E03005A	M3x5 Hex. Socket Head	2
21	0H04988B	Switch Cover	4	L21	0E00594A	M3x8 @ Binding (Bronze)	4
22	BA06324A	Input Selector P.C.B. Ass'y	1	L22	0E00818A	M3x8 @ Binding (Black Chromate)	1
23	0J05256A	Wire Holder LWS-2W	2	L23	0E00941A	BT3x5 @ Binding (Black Chromate)	1
24	0J05233A	Volume Joint Arm	1	L24	0E03364A	M3x14 @ Binding (Bronze)	2
25	0J05283A	Cushion	1	L25	0E03362A	BT3x30 @ Binding	5
26	HA05133A	Rear Panel Ass'y (CA-7A)	1	L26	0E03403A	BT3x14 @ Binding (Black Chromate) (CA-7 (Canada) & CA-70)	2
	HA05134A	Rear Panel Ass'y (CA-7 (Canada))	1	L27	0E03395A	M3x8 @ Binding	1
	HA05131A	Rear Panel Ass'y (CA-7 (Australia))	1	L28	0E03410A	Washer 4mm (Black)	1
	HA05130A	Rear Panel Ass'y (CA-7 (Saudi Arabia & Other))	1	L29	0E03294A	BT3x14 @ Binding (Black Chromate)	2
	HA05132A	Rear Panel Ass'y (CA-7E (except Germany))	1				
	HA05255A	Rear Panel Ass'y (CA-7E (Germany))	1				
	HA05129A	Rear Panel Ass'y (CA-70)	1				
27	0J05246A	Ground Bracket	1				
28	BA06325A	Pin Jack L P.C.B. Ass'y	1				
29	BA06326A	Pin Jack R P.C.B. Ass'y	1				
30	0H04996C	Side Panel R	1				
31	BA06323A	Amp. R P.C.B. Ass'y	1				
32	0J05245A	Transformer Spacer	4				
33	0B50080B	Power Transformer (CA-7A & CA-7 (Canada))	1				
	0B50081A	Power Transformer (CA-7 (Australia) & CA-7E)	1				
	0B50082A	Power Transformer (CA-7 (Saudi Arabia & Other))	1				
	0B50078A	Power Transformer (CA-70)	1				
34	0J05251A	Spacer 20mm	1				
35	0J05249A	Collar Bushing NA-320	5				

4.3. Front Panel Ass'y (A02)

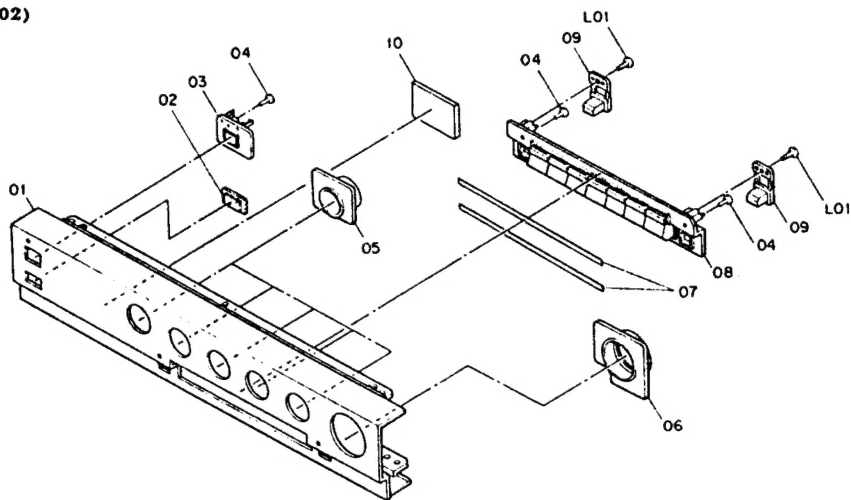


Fig. 4.3

4.4. Volume Control Ass'y (B01)

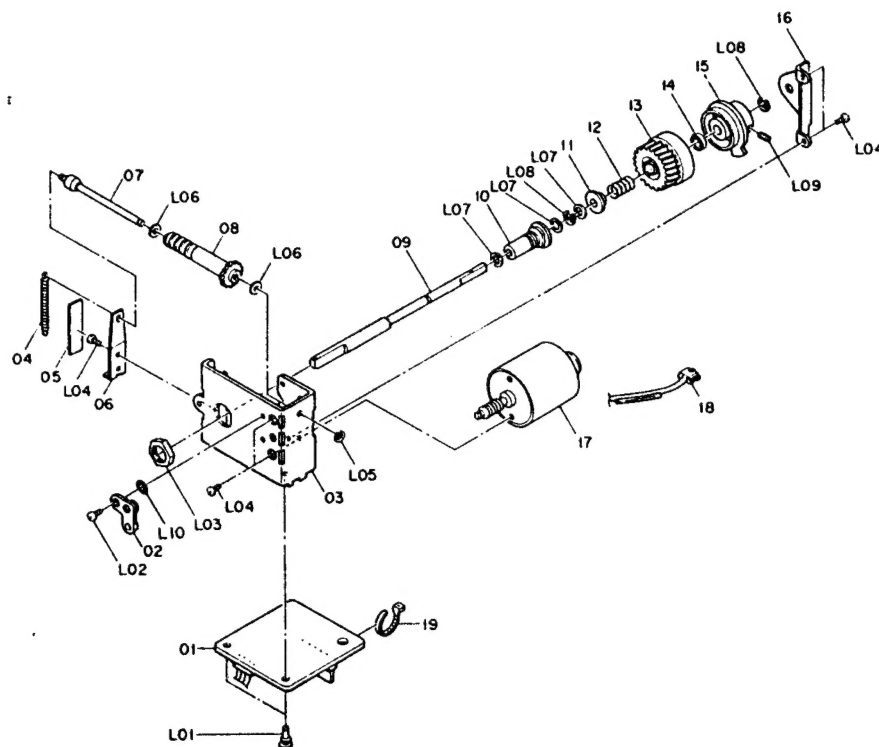


Fig. 4.4

Schematic Ref. No.	Part No.	Description	Qty	Schematic Ref. No.	Part No.	Description	Qty
A02	HA05144A	Front Panel Ass'y (CA-7A)	1	04	0H04639B	Lens	3
	HA05143A	Front Panel Ass'y (CA-7)	1	05	0H04648B	Volume Knob Holder	5
	HA05146A	Front Panel Ass'y (CA-7E)	1	06	0H04998A	Volume Holder	1
	HA05145A	Front Panel Ass'y (CA-70)	1	07	0J05277A	Adhesive Tape	2
		Serial No.: B10701001 -		08	HA05128C	Input Button Ass'y	1
01	0H05003B	Front Panel (CA-7A)	1	09	0H04992A	Mute Button	2
	0H04989B	Front Panel (CA-7)	1	10	0J05286A	Vibration Isolating Sheet F	1
	0H05005B	Front Panel (CA-7E)	1	L01	0E00855A	BT2x6 @ Binding	2
	0H05004B	Front Panel (CA-70)	1				
	0H04777B	Remote Control Lens	1				
02	0J05218A	Power Switch Knob Guide	1				

4.5. Rear Panel Ass'y (B02)

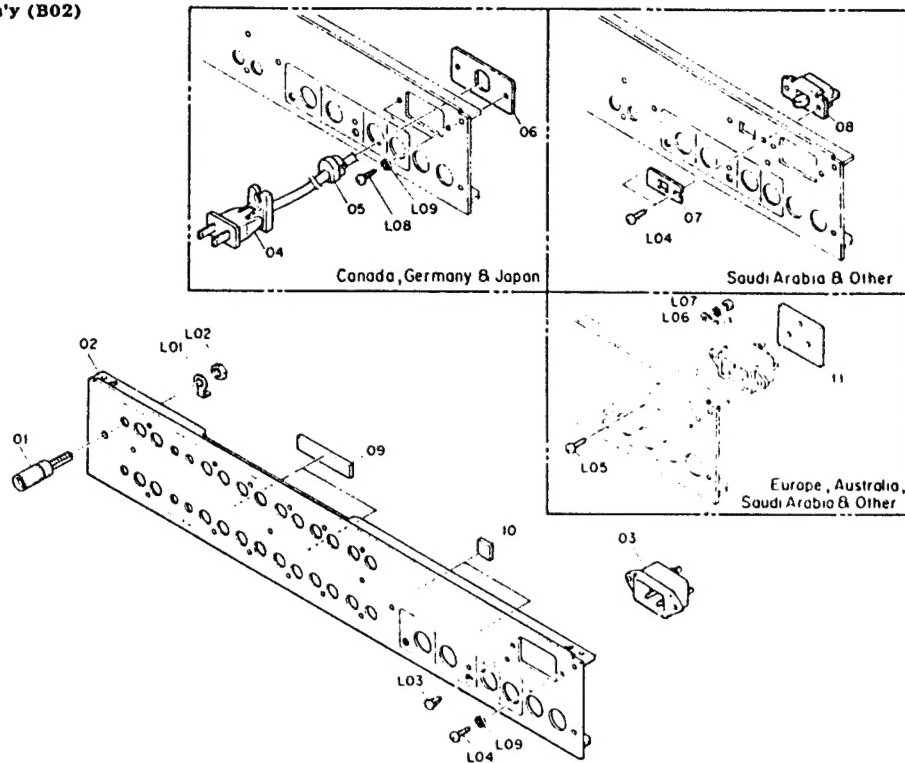


Fig. 4.5

Schematic Ref. No.	Part No.	Description	Qty	Schematic Ref. No.	Part No.	Description	Qty
B01	JA04253A	Volume Control Ass'y Serial No.: B10701001 -	1		0H05011C	Rear Panel (CA-7 (Australia))	1
01	BA06342A	Motor P.C.B. Ass'y	1		0H05006C	Rear Panel (CA-7 (Saudi Arabia & Other))	1
02	0J05231A	Thrust Spring B	1		0H05008C	Rear Panel (CA-7E (except Germany))	1
03	0J05239A	Volume Chassis	1		0H05079A	Rear Panel (CA-7E (Germany))	1
04	0J05243A	Warm Shaft Spring	1		0H05009C	Rear Panel (CA-70)	1
05	0J05282A	Cushion	1	03	0B90087A	AC Inlet (except CA-7 (Canada), CA-7E (Germany) & CA-70)	1
06	0J05241A	Worm Thrust Spring	1	04	0B90156A	Power Cord SJ17328 (CA-7 (Canada))	1
07	JA04255A	Worm Shaft Ass'y	1		0B80124A	Power Cord (CA-7E (Germany))	1
08	0J05232B	Worm Gear	1		0B80085A	Power Cord (CA-70)	1
09	0J05234A	Volume Shaft	1		0B90157A	Cord Bushing (CA-7 (Canada) & CA-7E (Germany))	1
10	0J05235A	Volume Bearing	1	05	0B90186A	Cord Bushing (CA-70)	1
11	0J05230A	Spring Flange	1	06	0H04772A	Bushing Holder (CA-7 (Canada) & CA-7E (Germany))	1
12	0J05242A	Friction Spring	1		0H04856A	Bushing Holder (CA-70)	1
13	0J05228A	Volume Gear	12	07	0M03948A	Voltage Lock Plate (CA-7 (Saudi Arabia & Other))	1
14	0J05236A	Ball Bearing 4mm	1	08	0B07092U	Voltage Selector (CA-7 (Saudi Arabia & Other))	1
15	0J05229B	Clutch Disc	1		0J05308A	Vibration Isolating Sheet 2R	2
16	0J05240A	Volume Shaft Holder	1	10	0J05307A	Vibration Isolating Sheet 1R	2
17	JA04257A	Volume Control Motor Ass'y	1	11	0B60430A	AC Receptacle P.C.B. (CA-7 (Australia, Saudi Arabia & Other) & CA-7E (except Germany))	1
18	0B82789A	2P-H Connector	1		0M03700A	Earth Mark Label (CA-7E)	1
19	0B90019A	Insu-lock SKB-80	1	L01	—	Earth Lug (Ground Terminal)	(1)
L01	0J05254A	Plastic Rivet 3x5.5	2	L02	—	Nut (Ground Terminal)	(1)
L02	0E00922A	M2x3 @Pan (Black Chromate)	1	L03	0J05108A	Hole Plug (CA-7A, CA-7 & CA-70)	1
L03	0E00150A	Nut Hex. M8	1	L04	0E00594A	M3x8 @ Binding (Bronze) (except CA-7 (Canada), CA-7E (Germany) & CA-70)	2
L04	0E00783A	M2x3 @Pan (Black Chromate)	5	L05	0E00756A	M4x8 @ Binding (Bronze) (CA-7E (except Germany))	1
L05	0E00042A	E-Ring 1.5mm	1	L06	0E00078A	Washer 4mm (CA-7E (except Germany))	1
L06	0E03356A	Washer 2.1x4x0.5	2	L07	0E00669A	Nut Hex. M4 (CA-7E (except Germany))	1
L07	0E03357A	Washer 4.1x6x0.25	3	L08	0E00921A	BT3x8 @ Binding (Black Chromate) (CA-7 (Canada), CA-7E (Germany) & CA-70)	2
L08	0E00181A	E-Ring 3mm	2	L09	0E03406A	Washer 3mm (Cu Black) (CA-7A, CA-7 (Australia & Other) & CA-7E)	2
L09	0E03005A	M3x5 Cup Point Hex. Socket Head	1				
L10	0E03061A	Plastic Washer 2.1mm	1				
B02	HA05133A	Rear Panel Ass'y (CA-7A)	1				
	HA05134A	Rear Panel Ass'y (CA-7 (Canada))	1				
	HA05131A	Rear Panel Ass'y (CA-7 (Australia))	1				
	HA05130A	Rear Panel Ass'y (CA-7 (Saudi Arabia & Other))	1				
	HA05132A	Rear Panel Ass'y (CA-7E (except Germany))	1				
	HA05255A	Rear Panel Ass'y (CA-7E (Germany))	1				
	HA05129A	Rear Panel Ass'y (CA-70) Serial No.: B10701001 -	1				
01	0B81685A	Ground Terminal T-5435	1				
02	0H04997C	Rear Panel (CA-7A)	1				
	0H05007C	Rear Panel (CA-7 (Canada))	1				

5. MOUNTING DIAGRAMS AND PARTS LIST

- Notes: 1. Mounting diagram shows a dip side view of the printed circuit board.
 2. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
 3. Abbreviation for part name:
 TR — Transistor, SiD — Silicon Diode, ZD — Zener Diode
 RK — Carbon Resistor, RM — Metal Film Resistor, RF — Fail Safe Type Resistor
 CE — Electrolytic Capacitor, CM — Mylar Capacitor, CC — Ceramic Capacitor, CP — PP Capacitor
 CMM — Metalized Mylar Capacitor, CSP — Polystyrene Capacitor, C — Mica Capacitor
 4. Part name marked with * shows a chip part. (RK*: Chip Carbon Resistor)

5.1. Power Switch P.C.B. Ass'y

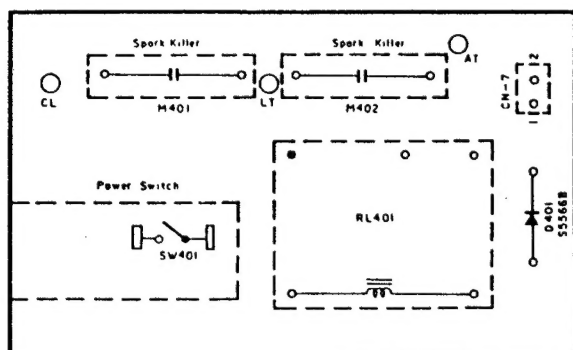


Fig. 5.1.1 For CA-7A, CA-7 (Canada) & CA-70

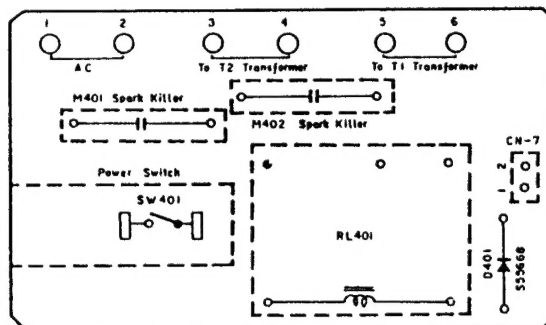


Fig. 5.1.2 For CA-7 (Australia) & CA-7E

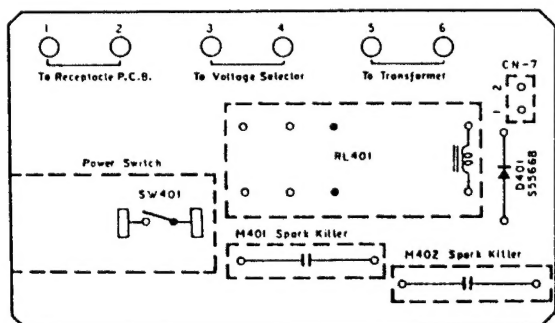


Fig. 5.1.3 For CA-7 (Saudi Arabia & Other)

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	
Q320 Q321	BA06481A	Set B P.C.B. Ass'y (CA-7A, CA-7 (Canada) & CA-70)	D401 RL401 SW401 CN7 M401,402	BA06325A	Pin Jack L P.C.B. Ass'y (1)	D401 RL401 SW401 CN7 M401,402	BA06568A	Power Switch P.C.B. Ass'y (CA-7 (Australia) & CA-7E (except Germany))	
	BA06566A	Set B P.C.B. Ass'y (CA-7 (Australia, Saudi Arabia & Other) & CA-7E)		BA06326A	Pin Jack R P.C.B. Ass'y (1)		BA06799A	Power Switch P.C.B. Ass'y (CA-7E (Germany))	
	OB10198A	TR 2SA1358		BA06327A	Record Out Selector P.C.B. Ass'y (1)		OB60427A	Power Switch P.C.B.	
	OB10199A	TR 2SC3421		BA06335A	Power Indicator P.C.B. Ass'y (1)		OB06109A	SiD GP08B	
	OB82865B	Pin Ground Code		BA06328A	Power Switch P.C.B. Ass'y (CA-7A, CA-7 (Canada) & CA-70)		OB90212A	Relay DC24V	
	OE03319A	M3x8 @ Binding (Nickel) (3)		BA06328A	Power Switch P.C.B. Ass'y (CA-7A, CA-7 (Canada) & CA-70)		OB71006A	Power Switch	
	OE03395A	M3x8 @ Binding Cu (2)					OB81223A	2P-T Post (White)	
	OJ05221B	Shield Plate (1)					OB90232A	Spark Killer	
	OJ05254A	Plastic Rivet 3x5.6 (6)					OB90019A	Insu-Lock SKB80 (1)	
	OJ05263A	Volume Plate (1)					D401 RL401 SW401 CN7 M401,402	BA06589A	Power Switch P.C.B. Ass'y (CA-7 (Saudi Arabia & Other))
	OJ05290A	Heat Sink B (1)	OB60429A			Power Switch P.C.B.			
	OJ05309A	BS Damper 1 (1)	OB06109A			SiD GP08B			
	OJ05310A	BS Damper 2 (2)	OB90240A			Relay DC24V			
	OJ06312A	Tape 2 (4)	OB71006A	Power Switch					
	BA06324A	Input Selector P.C.B. Ass'y (1)	OB81223A	2P-T Post (White)					
			OB90232A	Spark Killer					
			OB90019A	Insu-Lock SKB80 (2)					

5.2. Power Indicator P.C.B. Ass'y

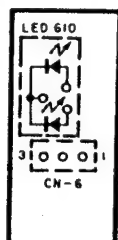


Fig. 5.2

5.3. Volume Indicator P.C.B. Ass'y

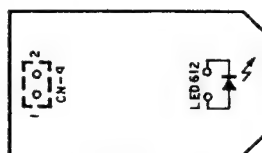


Fig. 5.3

5.4. Remote Control Sensor P.C.B. Ass'y

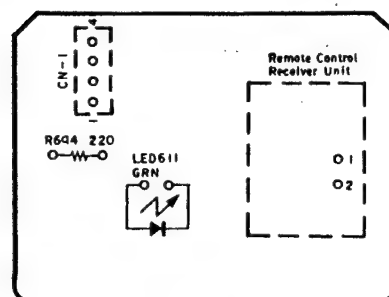


Fig. 5.4

5.5. Motor P.C.B. Ass'y

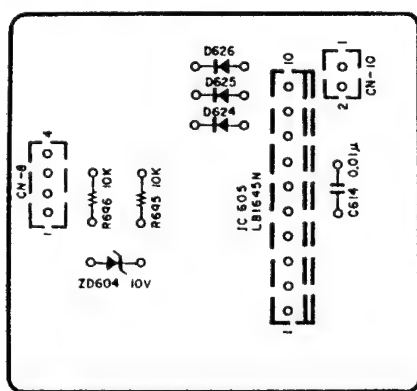


Fig. 5.5

5.6. Record Out Selector P.C.B. Ass'y

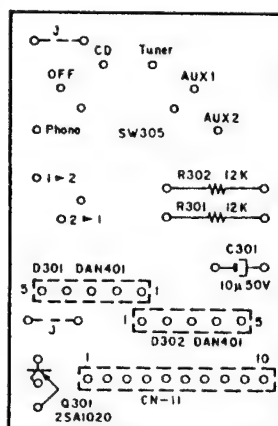


Fig. 5.6.1
Serial No.: B10701061 -

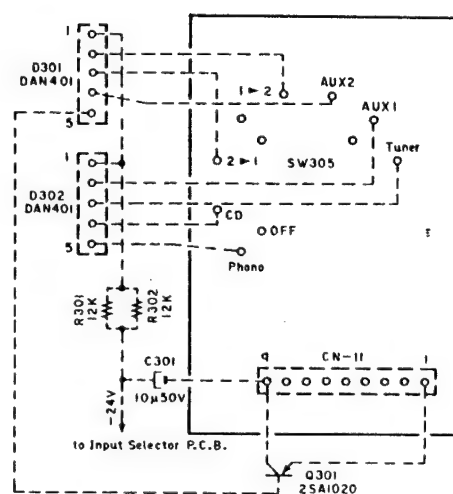


Fig. 5.6.2
Serial Nos.: B10701001 - 01060

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
LED610 CN6	BA06335A	Power Indicator P.C.B. Ass'y	LED611 R694 CN1	BA06341A	Remote Control Sensor P.C.B. Ass'y	Q301 D301,302 R301,302 C301 SW305 CN11	BA06327A	Record Out Selector P.C.B. Ass'y
	OB60404A	Power Indicator P.C.B.		OB60407B	Remote Control Sensor P.C.B.		OB60401C	Record Out Selector P.C.B.
	OB16021A	LED* SLM23DMWP-97 (GRN,ORN)		OB12353A	LED SLE-26MG (GRN)		OB10015A	TR 2SA1020 (O,Y)
	OB82790A	3P-H Connector		OB09661A	RK 220 1/6W J		OB12497A	D-Array DAN401
LED612 CN9	BA06343A	Volume Indicator P.C.B. Ass'y	IC605 ZD604 D624,625 626 R695,696 C614 CN8 CN10	OB81038A	4P-S Post		OB09263A	RK 12K 1/4W J
	OB60409B	Volume Indicator P.C.B.		OB19005A	Remote Control Receiver Unit (1)		OB40461A	CE 10μ 50V
	OB12402A	LED SLH-34MC (GRN)		0J05244A	LED Holder (1)		OB70090A	Rotary Switch
	OB82788B	2P-H Connector		BA06342A	Motor P.C.B. Ass'y		OB83049A	10P Connector
				OB60408B	Motor P.C.B.			
				OB11250A	IC LB1645N			
				OB12309A	ZD 10V MTZ10C			
				OB06398A	SiD 1SS176			
				OB09701A	RK 10K 1/6W J			
				OB05681A	CM 0.01μ 50V J			
				OB82787A	4P-H Connector			
				OB81036A	2P-S Post			

5.7. Pin Jack L P.C.B. Ass'y

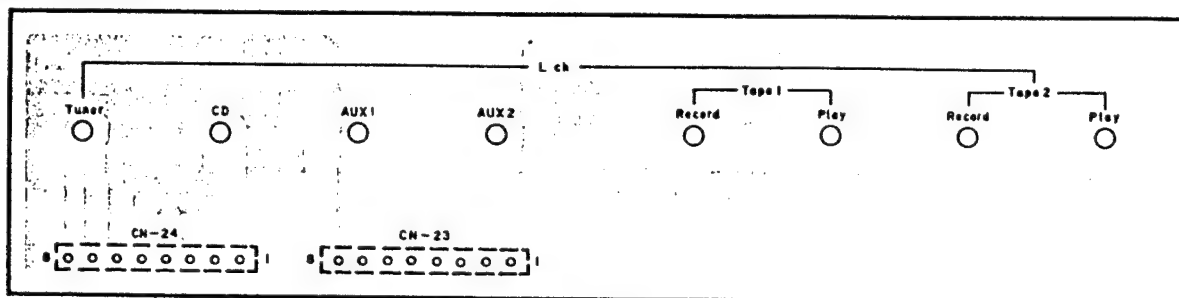


Fig. 5.7

5.8. Pin Jack R P.C.B. Ass'y

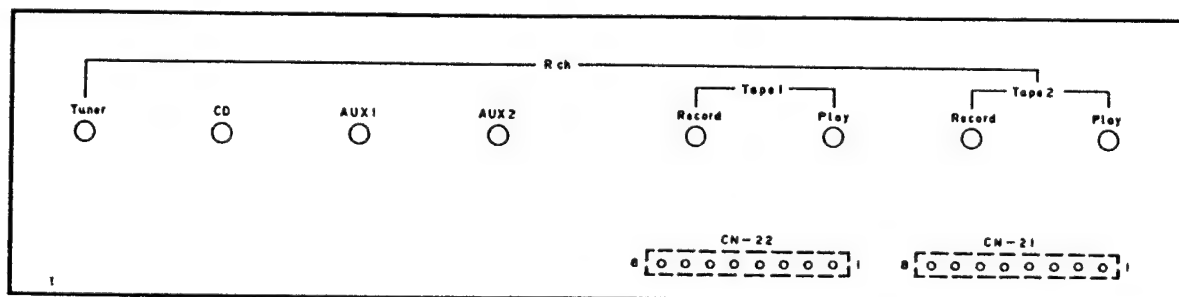


Fig. 5.8

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
CN21,22	BA06325A	Pin Jack L P.C.B. Ass'y	Q401,404 405,411 414,415 Q402,403 406,412 413,416 Q407,408 417,418 Q409,410 419,420 ZD401,402 ZD403,404 D401-408 D409-416 R401 R402,403 413,414 R404,405 415,416 R406,407 410,411 R408,409 419,420 R412	BA06332A	Power Supply P.C.B. Ass'y (CA-7A & CA-7 (Canada, Saudi Arabia & Other))	R417,418 421,422 C401,402	OB25484A	RM 26.1 1/4W F
	OB60399B	Pin Jack L P.C.B. Dip Mate 8P		BA06333A	Power Supply P.C.B. Ass'y (CA-7 (Australia) & CA-7E (except Germany))		OB40425A	CE 8200μ 16V (CA-7A, CA-7 & CA-7E (except Germany))
	OB81019A	2P Pin Jack (4)		BA06777A	Power Supply P.C.B. Ass'y (CA-7E (Germany))		OB40455A	CE 8200μ 16V (CA-7E (Germany) & CA-70)
CN23,24	BA06326A	Pin Jack R P.C.B. Ass'y	Q401,404 405,411 414,415 Q402,403 406,412 413,416 Q407,408 417,418 Q409,410 419,420 ZD401,402 ZD403,404 D401-408 D409-416 R401 R402,403 413,414 R404,405 415,416 R406,407 410,411 R408,409 419,420 R412	BA06331A	Power Supply P.C.B. Ass'y (CA-70)	C403,404	OB40426A	CE 3900μ 50V (CA-7A, CA-7 & CA-7E (except Germany))
	OB60400B	Pin Jack R P.C.B. Dip Mate 8P		OB60403C	Power Supply P.C.B. TR 2SA970 (BL)		OB40456A	CE 3900μ 50V (CA-7E (Germany) & CA-70)
	OB81019A	2P Pin Jack (4)		OB1G050A	TR 2SC2240 (BL)		OB41786A	CSP 560P 160V
LED601,609 LED602-608 SW601-609 CN2 CN3 CN4 CN8 CN9	BA06340A	Function Switch P.C.B. Ass'y	Q401,404 405,411 414,415 Q402,403 406,412 413,416 Q407,408 417,418 Q409,410 419,420 ZD401,402 ZD403,404 D401-408 D409-416 R401 R402,403 413,414 R404,405 415,416 R406,407 410,411 R408,409 419,420 R412	OB06142A	TR 2SC2240 (BL)	C405-408	OB90215A	Fuse Holder (CA-7A, CA-7 (Canada, Saudi Arabia & Other) & CA-70) (4)
	OB60406B	Function Switch P.C.B.		OB10198A	TR 2SA1358		OB90216A	Fuse Holder (CA-7 (Australia) & CA-7E) (4)
	OB12274A	LED SLR-34MG3 (GRN)		OB10199A	TR 2SC3421		OB81649A	Terminal P-100 (4)
	OB12392A	LED SLV-31MC (GRN) (7)		OB12166A	ZD 9.1V		OB82866B	Audio Ground Code (1)
	OB70062A	Tact Switch (9)		OB12206A	ZD 36V		OB82893A	Relay DC Code (1)
	OB81043A	9P-S Post		OB12102A	SID 10DF-2 (8)		OE00741A	M3x12 Ø Binding (Nickel) (4)
	OB81044A	10P-S Post		OB06181A	SID 15S53 (8)		OE00972A	Nut Hex. M3 (4)
	OB81039A	5P-S Post		OB09305A	RM 100K 1/4W F		OJ05289A	Heat Sink A (1)
	OB81038A	4P-S Post		OB22630A	RM 604 1/4W F		OB90239A	Transistor Seat (8)
	OB81036A	2P-S Post		OB09491A	RM 1K 1/4W F			
	OJ05216A	LED House (2)		OB22718A	RM 6.65 1/4W F			
	OJ05217A	Reflector (1)		OB22567A	RM 100 1/4W F			
				OB09502A	RM 1M 1/4W F			

5.9. Function Switch P.C.B. Ass'y

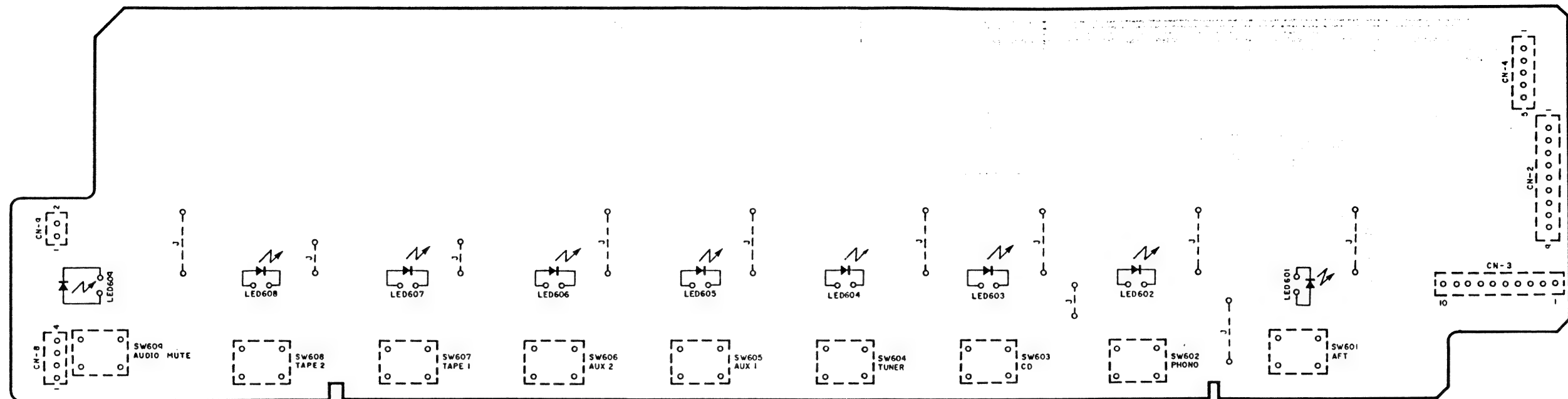


Fig. 5.9

5.10. Power Supply P.C.B. Ass'y

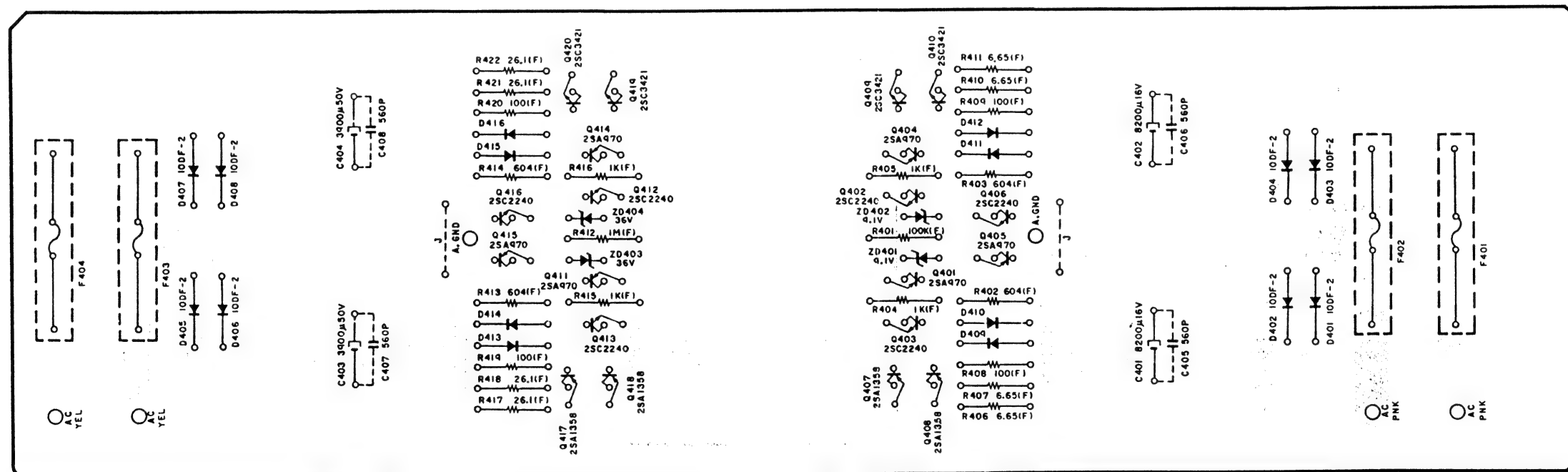


Fig. 5.10

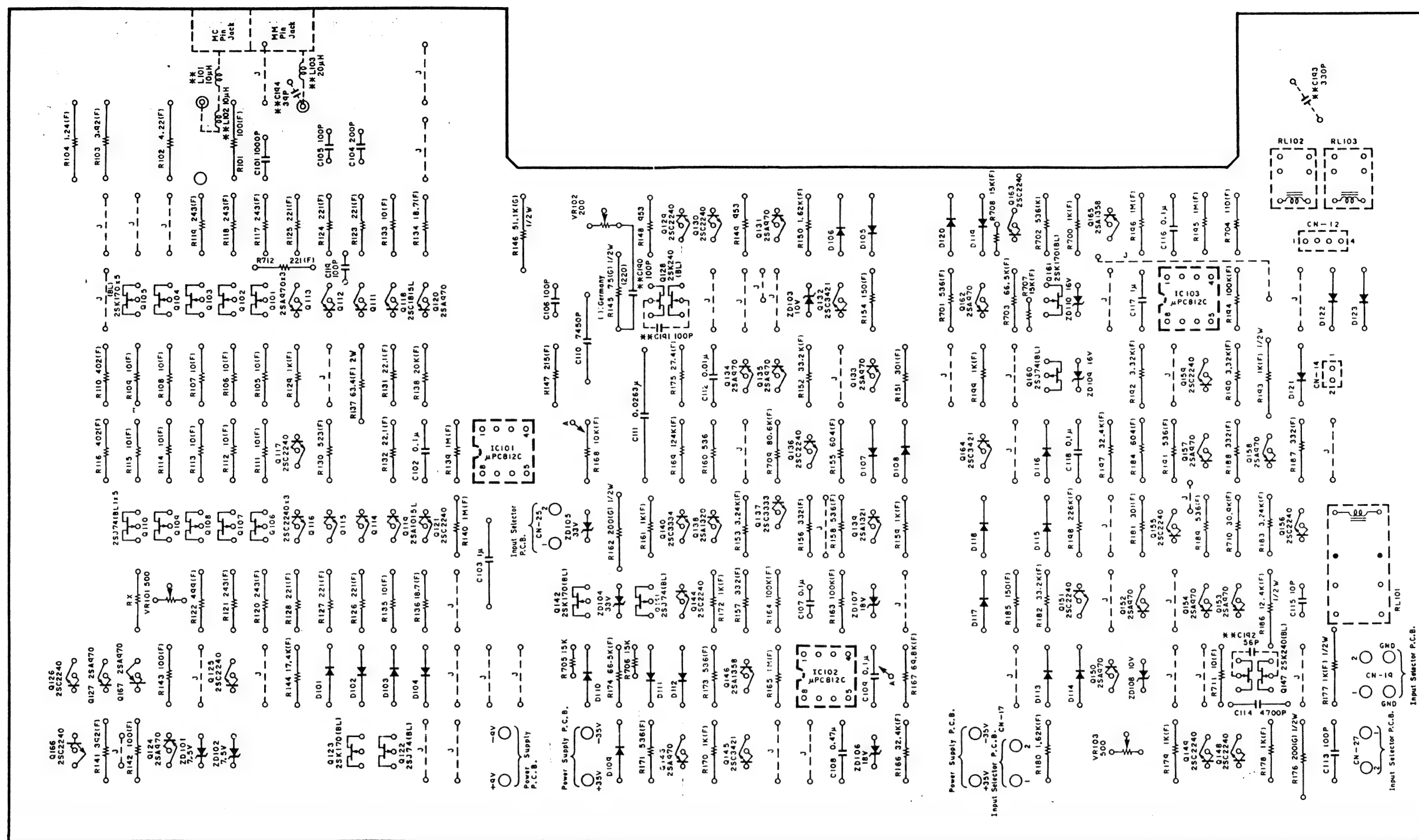


Fig. 5.11

Note: Parts marked with ** are for CA-7 (Germany)).

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA06322A	Amp. L P.C.B. Ass'y	R158,160	OB22713A	RM 536 1/4W F		OB82882A	Mute Relay L Code (1)
	— MC Amp. —		R171,173					
IC101	OB11254A	IC μ PC812	R159,161	OB09491A	RM 1K 1/4W F	L101,102	OB82887A	AFT DC L Code (1)
Q101-105	OB10112A	FET 2SK170 (BL)	R170,172			L103	OB51246A	Coll 10 μ H
123		(6)	R162	OB20410A	RK 200 1/2W G		OB51245A	Coll 20 μ H
Q106-110	OB10169A	FET 2SJ74 (BL)	R165	OB09305A	RM 100K 1/4W F	C190,191	OB41764A	(CA-7E (Germany))
122		(6)	R166	OB09502A	RM 1M 1/4W F			
Q111-113	OB10050A	TR 2SA970 (BL)	R167	OB22731A	RM 32.4K 1/4W F	C192	OB41796A	CSP 100P 160V J
120,124		(7)	R168	OB22741A	RM 69.8K 1/4W F			(CA-7E (Germany))
127,167			R169	OB22729A	RM 10.0K 1/4W F	C193	OB41795A	CSP 56P 160V J
Q114-117	OB06142A	TR 2SC2240 (BL)	R174	OB22745A	RM 124K 1/4W F			(CA-7E (Germany))
121,125		(8)	R175	OB09510A	RM 66.5K 1/4W F	C194	OB41747A	CSP 330P 160V J
126,166			R705,706	OB22738A	RM 27.4 1/4W F			(CA-7E (Germany))
Q118	OB10201A	TR 2SC1815L	R709	OB22361A	RM 15K 1/4W F			C 39P 100V J
Q119	OB10200A	TR 2SA1015L	C104	OB09459A	RM 80.6K 1/4W F			(CA-7E (Germany))
ZD101,102	OB12158A	ZD 7.5V	C105,106	OB41765A	CSP 200P 160V J			
		RD7.5JS-T1B1	C108	OB41764A	CSP 100P 160V J			
D101-104	OB06181A	SID 1SS53 (4)	C109	OB41776A	CM 0.47 μ 125V K			
VR101	OB32104A	Semi VR 500	C110	OB41476A	CM 0.1 μ 63V J			
R102	OB22723A	RM 4.22 1/4W F	C111	OB41722A	CSP 7450P 100V F			
R103	OB22722A	RM 3.92 1/4W F	C112	OB41723A	CSP 0.0263 μ 100V F			
R104	OB22721A	RM 1.24 1/4W F		OB41767A	CSP 0.01 μ 160V J			
R105-109	OB22666A	RM 10 1/4W F		OB70087A	Toggle Switch (1)			
111-115		(12)		OB70088A	Toggle Switch (1)			
133,135				— Line Amp. —				
R110,116	OB22661A	RM 402 1/4W F	IC103	OB11254A	IC μ PC812			
R117-121	OB22579A	RM 243 1/4W F	Q147	OB10188A	FET 2SK240 (BL)			
		(5)	Q148,149	OB06142A	TR 2SC2240 (BL)			
R122	OB22645A	RM 499 1/4W F	151,155					
R123-128	OB22642A	RM 221 1/4W F	156,159					
712		(7)	163					
R129	OB09491A	RM 1K 1/4W F	Q150,152	OB10050A	TR 2SA970 (BL)			
R130	OB22739A	RM 523 1/4W F	153,154					
R131,132	OB22709A	RM 22.1 1/4W F	157,158					
R134,136	OB22743A	RM 18.7 1/4W F	162					
R137	OB20409A	RK 63.4 2W F	Q160	OB10169A	FET 2SJ74 (BL)			
R138	OB09439A	RM 20K 1/4W F	Q161	OB10112A	FET 2SK170 (BL)			
R139,140	OB09502A	RM 1M 1/4W F	Q164	OB10199A	TR 2SC3421			
R141	OB22696A	RM 392 1/4W F	Q165	OB10198A	TR 2SA1358			
R142,143	OB22567A	RM 100 1/4W F	ZD108	OB12168A	ZD 10V			
R144	OB22711A	RM 17.4K 1/4W F			RD10JS-T1B2			
C101	OB41725A	CSP 1000P 100V J	ZD109,110	OB12184A	ZD 16V			
C102	OB41476A	CM 0.1 μ 63V J			RD16JS-T1B3			
C103	OB41543A	CM 1 μ 125V	D113-123	OB06181A	SID 1SS53 (11)			
C119	OB41764A	CSP 100P 160V J	VR103	OB32104A	Semi VR 500			
	OB70087A	Toggle Switch (1)	R176	OB20410A	RK 200 1/2W G			
	OB81653A	Socket Pin (2)	R177,193	OB20411A	RK 1K 1/2W F			
			R178,179	OB09491A	RM 1K 1/4W F			
			199,700					
	— RIAA Eq. Amp. —		R180	OB22728A	RM 1.62K 1/4W F			
IC102	OB11254A	IC μ PC812	R181	OB22695A	RM 301 1/4W F			
Q128	OB10188A	FET 2SK240 (BL)	R182	OB09446A	RM 33.2K 1/4W F			
Q129,130	OB06142A	TR 2SC2240 (BL)	R183	OB09540A	RM 3.24K 1/4W F			
136,144			R184	OB22630A	RM 604 1/4W F			
Q131,133	OB10050A	TR 2SA970 (BL)	R185	OB22633A	RM 150 1/4W F			
134,135			R186	OB20395A	RK 12.4K 1/2W F			
143			R187,188	OB09760A	RM 332 1/4W F			
Q132,145	OB10199A	TR 2SC3421	R189,191	OB22713A	RM 536 1/4W F			
Q137	OB10103A	TR 2SC3333	701,702					
Q138	OB10102A	TR 2SA1320	R190,192	OB09829A	RM 3.32K 1/4W F			
Q139	OB10142A	TR 2SA1321	R194	OB09305A	RM 100K 1/4W F			
Q140	OB10143A	TR 2SC3334	R195,196	OB09502A	RM 1M 1/4W F			
Q141	OB10169A	FET 2SJ74 (BL)	R197	OB22731A	RM 32.4K 1/4W F			
Q142	OB10112A	FET 2SK170 (BL)	R198	OB22742A	RM 226K 1/4W F			
Q146	OB10198A	TR 2SA1358	R703	OB09510A	RM 66.5K 1/4W F			
ZD103	OB12168A	ZD 10V	R704	OB22726A	RM 110 1/4W F			
		RD10JS-T1B2	R707,708	OB22361A	RM 15K 1/6W F			
ZD104,105	OB12205A	ZD 33V	R710	OB22660A	RM 30.9K 1/4W F			
		RD33JS-T1B3	R711	OB22666A	RM 10.0 1/4W F			
ZD106,107	OB12185A	ZD 18V	C113	OB41764A	CSP 100P 160V J			
		RD18JS-T1B1	C114	OB41766A	CSP 4700P 160V J			
D105-112	OB06181A	SID 1SS53 (8)	C115	OB41763A	CSP 10P 160V J			
VR102	OB32117A	Semi VR 200	C116,118	OB41476A	CM 0.1 μ 63V J			
R145	OB20208A	RK 75 1/2W G	C117	OB41543A	CM 1 μ 125V K			
		(Except CA-7E (Germany))	RL101	OB90086A	Relay MR62-24S			
	OB20401A	RK 220 1/2W	RL102,103	OB90211A	Relay FBR 22ND24			
		(CA-7E (Germany))		— Miscellaneous —				
R146	OB20344A	RK 51.1K 1/2W G		OB60396C	Amp L P.C.B.			
R147	OB22744A	RM 215 1/4W F		OB81630A	Pin Jack T5882 (2)			
R148,149	OB22569A	RM 953 1/4W F		OB82863A	AFT Relay L Code			
R150	OB22728A	RM 1.62K 1/4W F			(1)			
R151	OB22695A	RM 301 1/4W F		OB82869B	DC L.H.N Code (1)			
R152	OB09446A	RM 33.2K 1/4W F		OB82870B	DC L.H.P Code (1)			
R153	OB09540A	RM 3.24K 1/4W F		OB82873B	DC L.L.N Code (1)			
R154	OB22633A	RM 150 1/4W F		OB82874B	DC L.L.P Code (1)			
R155	OB22630A	RM 604 1/4W F		OB82875B	Line L Code (1)			
R156,157	OB09760A	RM 332 1/4W F		OB82876B	EQ L Out Code (1)			
				OB82880B	AFT L Code (1)			

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA06323A	Amp. R P.C.B. Ass'y	R258,260	OB22713A	RM 536 1/4W F		OB82872B	DC R.L.P Code (1)
	— MC Amp. —		271,273				OB82877B	Line R Code (1)
IC201	OB11254A	IC μ PC812	R259,261	OB09491A	RM 1K 1/4W F		OB82878B	EQ R Out Code (1)
Q201-205	OB10112A	FET 2SK170 (BL)	270,272				OB82879B	AFT R Code (1)
223		(6)	R262	OB20410A	RK 200 1/2W G		OB82883A	Mute Relay R Code (1)
Q206-210	OB10169A	FET 2SJ74 (BL)	R263,264	OB09305A	RM 100K 1/4W F	L201,202	OB82888A	AFT DC R Code (1)
222		(6)	R265	OB09502A	RM 1M 1/4W F		OB51246A	Coil 10 μ H
Q211-213	OB10050A	TR 2SA970 (BL)	R266	OB22731A	RM 32.4K 1/4W F	L203	OB51245A	Coil 20 μ H
220,224		(7)	R267	OB22741A	RM 69.8K 1/4W F			(CA-7E (Germany))
227,267			R268	OB22729A	RM 10.0K 1/4W F	C290,291	OB41764A	CSP 100P 160V J
Q214-217	OB06142A	TR 2SC2240 (BL)	R269	OB22745A	RM 124K 1/4W F			(CA-7E (Germany))
221,225		(8)	R274	OB09510A	RM 66.5K 1/4W F	C292	OB41796A	CSP 56P 160V J
226,266			R275	OB22738A	RM 27.4 1/4W F			(CA-7E (Germany))
Q218	OB10201A	TR 2SC1815L	R805,806	OB22361A	RM 15K 1/4W F	C293	OB41795A	CSP 330P 160V J
Q219	OB10200A	TR 2SA1015L	R809	OB09459A	RM 80.6K 1/4W F			(CA-7E (Germany))
ZD201,202	OB12158A	ZD 7.5V	C204	OB41765A	CSP 200P 160V J	C294	OB41747A	C 39P 100V J
		RD7.5JS-T1B1	C205,206	OB41764A	CSP 100P 160V J			(CA-7E (Germany))
D201-204	OB06181A	SiD 1SS53 (4)	C208	OB41776A	CM 0.47 μ 125V K			
VR201	OB32104A	Semi VR 500	C209	OB41476A	CM 0.1 μ 63V J			
R202	OB22723A	RM 4.22 1/4W F	C210	OB41722A	CSP 7450P 100V F			
R203	OB22722A	RM 3.92 1/4W F	C211	OB41723A	CSP 0.0263 μ 100V F			
R204	OB22721A	RM 1.24 1/4W F	C212	OB41767A	CSP 0.01 μ 160V J			
R205-209	OB22666A	RM 10 1/4W F		OB70087A	Toggle Switch (1)			
211-215		(12)		OB70088A	Toggle Switch (1)			
233,235				— Line Amp. —				
R210,216	OB22661A	RM 402 1/4W F	IC203	OB11254A	IC μ PC812			
R217-221	OB22579A	RM 243 1/4W F	Q247	OB10188A	FET 2SK240 (BL)			
		(5)	Q248,249	OB06142A	TR 2SC2240 (BL)			
R222	OB22645A	RM 499 1/4W F	251,255					
R223-228	OB22642A	RM 221 1/4W F	256,259					
712		(7)	263					
R229	OB09491A	RM 1K 1/4W F	Q250,252	OB10050A	TR 2SA970 (BL)			
R230	OB22739A	RM 523 1/4W F	253,254					
R231,232	OB22709A	RM 22.1 1/4W F	257,258					
R234,236	OB22743A	RM 18.7 1/4W F	262					
R237	OB20409A	RK 63.4 2W F	Q260	OB10169A	FET 2SJ74 (BL)			
R238	OB09439A	RM 20K 1/4W F	Q261	OB10112A	FET 2SK170 (BL)			
R239,240	OB09502A	RM 1M 1/4W F	Q264	OB10199A	TR 2SC3421			
R241	OB22696A	RM 392 1/4W F	Q265	OB10198A	TR 2SA1358			
R242,243	OB22567A	RM 100 1/4W F	ZD208	OB12168A	ZD 10V			
R244	OB22711A	RM 17.4K 1/4W F			RD10JS-T1B2			
C201	OB41725A	CSP 1000P 100V J	ZD209,210	OB12184A	ZD 16V			
C202	OB41476A	CM 0.1 μ 63V J			RD16JS-T1B3			
C203	OB41543A	CM 1 μ 125V	D213-223	OB06181A	SiD 1SS53 (11)			
C219	OB41764A	CSP 100P 160V J	VR203	OB32104A	Semi VR 500			
	OB70087A	Toggle Switch (1)	R276	OB20410A	RK 200 1/2W G			
	OB81653A	Socket Pin (2)	R277,293	OB20411A	RK 1K 1/2W F			
			R278,279	OB09491A	RM 1K 1/4W F			
	— RIAA Eq. Amp. —		299,800					
IC202	OB11254A	IC μ PC812	R280	OB22728A	RM 1.62K 1/4W F			
Q228	OB10188A	FET 2SK240 (BL)	R281	OB22695A	RM 301 1/4W F			
Q229,230	OB06142A	TR 2SC2240 (BL)	R282	OB09446A	RM 33.2K 1/4W F			
236,244			R283	OB09540A	RM 3.24K 1/4W F			
Q231,233	OB10050A	TR 2SA970 (BL)	R284	OB22630A	RM 604 1/4W F			
234,235			R285	OB22633A	RM 150 1/4W F			
243			R286	OB20395A	RK 12.4K 1/2W F			
Q232,245	OB10199A	TR 2SC3421	R287,288	OB09760A	RM 332 1/4W F			
Q237	OB10103A	TR 2SC3333	R289,291	OB22713A	RM 536 1/4W F			
Q238	OB10102A	TR 2SA1320	801,802					
Q239	OB10142A	TR 2SA1321	R290,292	OB09829A	RM 3.32K 1/4W F			
Q240	OB10143A	TR 2SC3334	R294	OB09305A	RM 100K 1/4W F			
Q241	OB10169A	FET 2SJ74 (BL)	R295,296	OB09502A	RM 1M 1/4W F			
Q242	OB10112A	FET 2SK170 (BL)	R297	OB22731A	RM 32.4K 1/4W F			
Q246	OB10198A	TR 2SA1358	R298	OB22742A	RM 226K 1/4W F			
ZD203	OB12168A	ZD 10V	R803	OB09510A	RM 66.5K 1/4W F			
		RD10JS-T1B2	R804	OB22726A	RM 110 1/4W F			
ZD204,205	OB12205A	ZD 33V	R807,808	OB22361A	RM 15K 1/6W F			
		RD33JS-T1B3	R810	OB22660A	RM 30.9K 1/4W F			
ZD206,207	OB12185A	ZD 18V	R811	OB22666A	RM 10.0 1/4W F			
		RD18JS-T1B1	C213	OB41764A	CSP 100P 160V J			
D205-212	OB06181A	SiD 1SS53 (8)	C214	OB41766A	CSP 4700P 160V J			
VR202	OB32117A	Semi VR 200	C215	OB41763A	CSP 10P 160V J			
R245	OB20208A	RK 75 1/2W G	C216,218	OB41476A	CM 0.1 μ 63V J			
		(Except CA-7E (Germany))	C217	OB41543A	CM 1 μ 125V K			
	OB20401A	RK 220 1/2W (CA-7E (Germany))	RL201	OB90086A	Relay MR62-24S			
			RL202,203	OB90211A	Relay FBR 22ND24			
				— Miscellaneous —				
R246	OB20344A	RK 51.1K 1/2W G		OB60397C	Amp. R P.C.B.			
R247	OB22744A	RM 215 1/4W F		OB81630A	Pin Jack T5882 (2)			
R248,249	OB22569A	RM 953 1/4W F		OB82864A	AFT Relay R Code (1)			
R250	OB22728A	RM 1.62K 1/4W F						
R251	OB22695A	RM 301 1/4W F		OB82867B	DC R.H.N Code (1)			
R252	OB09446A	RM 33.2K 1/4W F		OB82868B	DC R.H.P Code (1)			
R253	OB09540A	RM 3.24K 1/4W F		OB82871B	DC R.L.N Code (1)			
R254	OB22633A	RM 150 1/4W F						
R255	OB22630A	RM 604 1/4W F						
R256,257	OB09760A	RM 332 1/4W F						

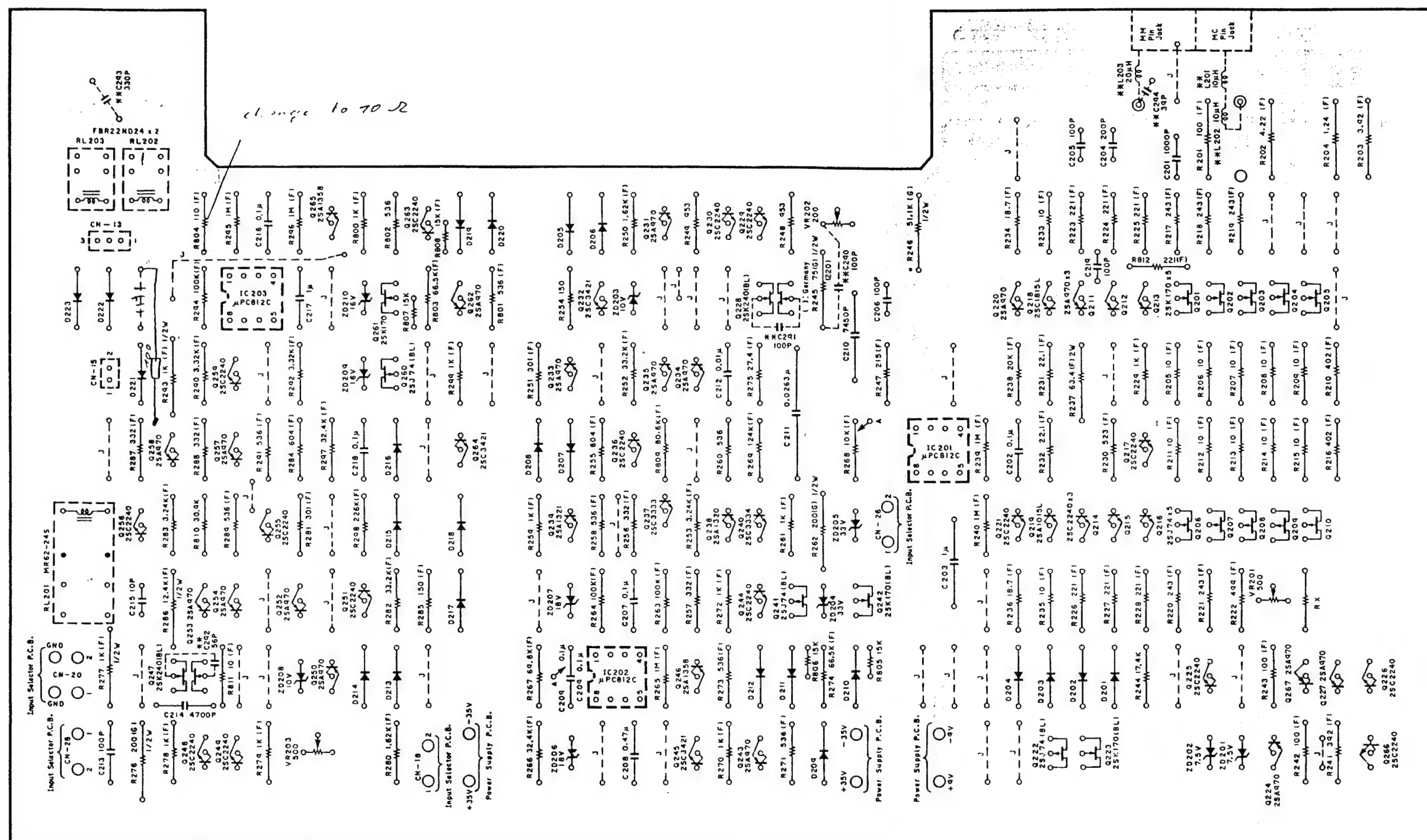


Fig. 5.12

Note: Parts marked with ** are for CA-7 (Germany)).

5.13. Logic P.C.B. Assy

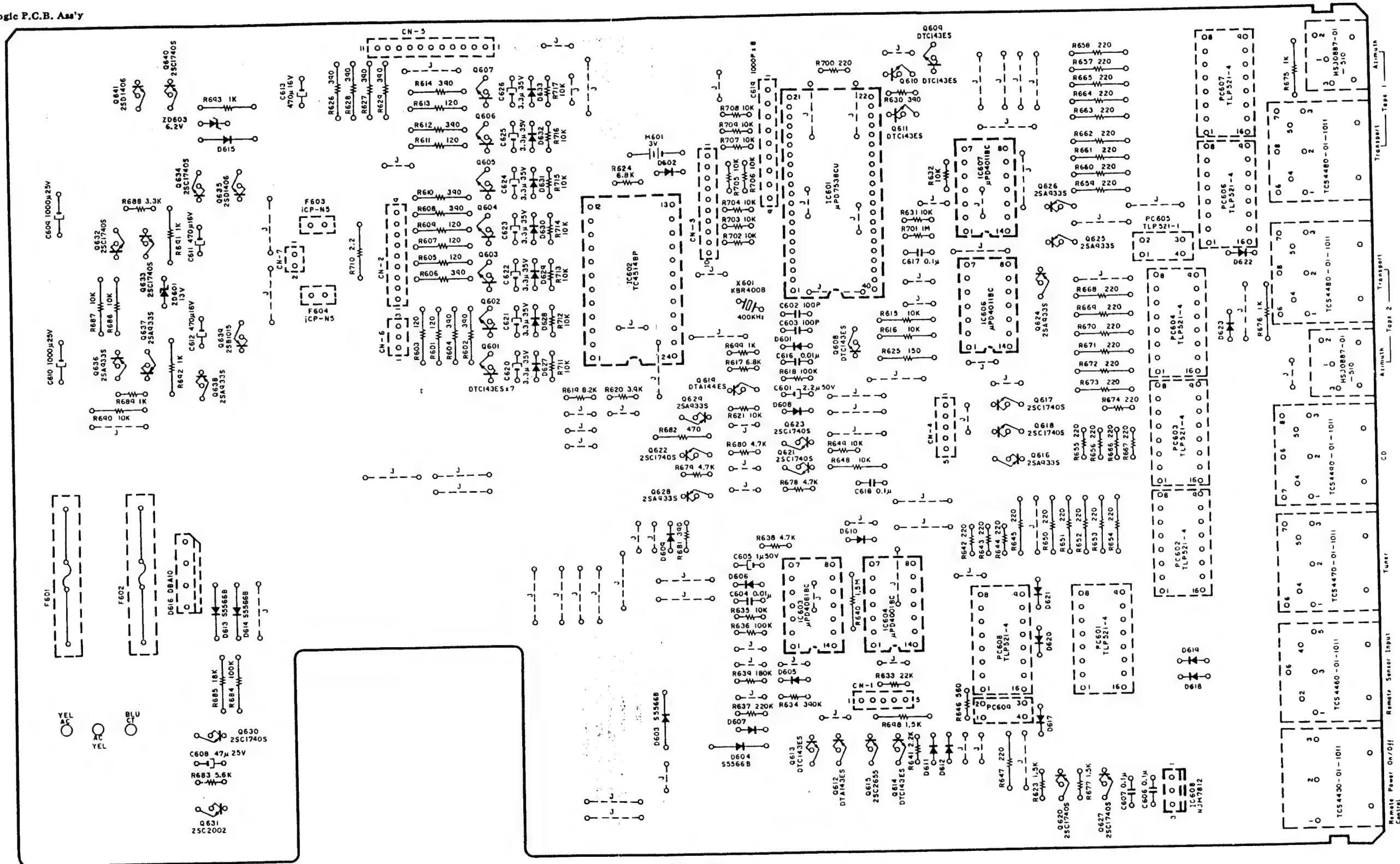


Fig. 5.13

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA06337A	Logic P.C.B. Ass'y (CA-7A & CA-7 (Canada, Saudi Arabia & Other))	R675,676 691,692 693	OB01857A	RK 1K 1/4W J
	BA06338A	Logic P.C.B. Ass'y (CA-7 (Australia) & CA-7E)	R682	OB05576A	RK 470 1/4W J
	BA06336A	Logic P.C.B. Ass'y (CA-70)	R683	OB09695A	RK 5.6K 1/6W J
	OB60405C	Logic P.C.B.	R684	OB01889A	RK 100K 1/4W J
IC601	OB11249A	IC μ PD7538CU	R685	OB05560A	RK 18K 1/4W J
IC602	OB06264A	IC TC4514BP	R688	OB09689A	RK 3.3K 1/6W J
IC603	OB06219A	IC μ PD4081BC	R689,699	OB09677A	RK 1K 1/6W J
IC604	OB06143A	IC μ PD4001BC	R698	OB05698A	RK 1.5K 1/4W J
IC606,607	OB06178A	IC μ PD4011BC	R701	OB09749A	RK 1M 1/6W J
IC608	OB06380A	IC NJM7812	R710	OB09925A	RK 2.2 1/4W J
Q601-611 613,614	OB10070A	TR DTC143ES (13)	C601	OB09372A	CE 2.2 μ 50V
Q612	OB10060A	TR DTA143ES	C602,603	OB09282A	CC 100P 50V K
Q615	OB06429A	TR 2SC2655 (Y)	C604,616	OB05681A	CM 0.01 μ 50V J
Q616,624 625,626 628,629 636,637 638	OB10026A	TR 2SA933S (Q,R,S)	C605	OB01405A	CE 1 μ 50V
Q617,618 620,621 622,623 627,630 632,633 634,640	OB10030A	TR 2SC1740S (Q,R,S,E)	C606,607 617,618	OB41298A	CMM 0.1 μ 50V J
Q619	OB10053A	TR DTA144ES	C608	OB01409A	CE 47 μ 25V
Q631	OB06322A	TR 2SC2002 (K,L)	C609,610	OB40424A	CE 1000 μ 25V
Q635,641	OB06452A	TR 2SD1406 (Y)	C611,612 613	OB40423A	CE 470 μ 16V
Q639	OB06451A	TR 2SB1015 (Y)	C619	OB42007A	C-Network 1000Px8
ZD601,602	OB12318A	ZD 13V MTZ13C	C620-626	OB40169A	CE 3.3 μ 35V (7)
ZD603	OB12295A	ZD 6.2V MTZ6.2C	PC601,602 603,604 606,607 608	OB10186A	Photocoupler TLP521-4 GB
D601,602 605-612 617-623 627-633	OB06398A	SiD 1SS176 (24)	PC605,609	OB10183A	Photocoupler TLP521-1 GB
D603,604 613,614	OB12362A	SiD S5566B	X601	OB02390A	Crystal 400kHz
D615	OB06181A	SiD 1SS53	F603,604	OB11248A	IC Protector ICP-N5
D616	OB06282A	Diode Bridge DBA10	CN1	OB82780A	4P/5P-H Connector
R601,603 605,607 609,611 613	OB09797A	RK 120 1/4W J	CN2	OB82781A	9P-H Connector
R602,604 606,608 610,612 614,626 627,628 629	OB05691A	RK 390 1/4W J	CN3	OB82782A	10P-H Connector
R615,616 648,686 687,690	OB01888A	RK 10K 1/4W J	CN4	OB82783A	5P-H Connector
R617,624 R618,636 R619 R620	OB09697A	RK 6.8K 1/6W J	CN5	OB82784B	11P-H Connector
R621,631 635,649 702-709 711-717	OB09725A	RK 100K 1/6W J	CN6	OB82785B	3P-H Connector
R623,677 R625	OB09699A	RK 8.2K 1/6W J	CN7	OB82786A	2P-H Connector
R630,681 R633	OB09691A	RK 3.9K 1/6W J		OB90089A	Fuse Holder (CA-7A, CA-7 (Canada, Saudi Arabia & Other) & CA-70) (2)
R634	OB09701A	RK 10K 1/6W J (19)		OB90090A	Fuse Holder (CA-7 (Australia) & CA-7E) (2)
R637	OB09681A	RK 1.5K 1/6W J		OB81376A	Terminal P-104 (4)
R638,678 679,680	OB05795A	RK 150 1/4W J		OB81610A	3P DIN Socket (1)
R639	OB09667A	RK 390 1/6W J		OB81611A	6P DIN Socket (1)
R640	OB09709A	RK 22K 1/6W J		OB81612A	7P DIN Socket (1)
R641	OB09739A	RK 390K 1/6W J		OB81613A	8P DIN Socket A (2)
R642,643 644,655 656,666 667,674 700	OB09733A	RK 220K 1/6W J		OB81614A	8P DIN Socket B (1)
R645,647 650-654 657-665 668-673 R646	OB09693A	RK 4.7K 1/6W J		OB81615A	Stereo Mini Jack (2)
	OB09731A	RK 180K 1/6W J		OJ05250A	DIN Bracket (1)
	OB09380A	RK 1.5M 1/4W J			
	OB09685A	RK 2.2K 1/6W J			
	OB09661A	RK 220 1/6W J			
	OB01933A	RK 220 1/4W J (22)			
	OB09671A	RK 560 1/6W J			

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA06324A	Input Selector P.C.B. Ass'y	R132,141 150,159 168,177 232,241 250,259 268,277	OB26032A	RM*200 1/8W F
	— AFT —		R178,179	OB26009A	RM*100K 1/8W F
Q101,104	OB06142A	TR 2SC2240 (BL)	180,181 278,279 280,281		
201,204	OB10050A	TR 2SA970 (BL)	C101,201	OB41770A	CP 0.018μ 50V J
Q102,105	OB10112A	FET 2SK170 (BL)	C102,202	OB41769A	CP 0.01μ 50V J
202,205			C103,203	OB41543A	CM 1μ 125V K
Q103,106	OB06181A	SID 1SS53	C104,204	OB41771A	CP 0.1μ 50V J
203,206			C105,205	OB41726A	CM 10μ 100V K
D101,102			C106,206	OB41764A	CSP 100P 160V J
103,104			SW301,302	OB70089A	Rotary Switch
201,202	OB30071A	Master Volume	303,304		
203,204	OB09774A	RM 1.13K 1/4W F		— Monitor —	
VR301			Q301-319	OB14170A	TR* 2SC2713 (19)
R101,106			Q303	OB10112A	FET 2SK170 (BL)
112,201			Q304	OB10169A	FET 2SJ74 (BL)
206,212			ZD301,302	OB12195A	ZD 24V
R102,108	OB22695A	RM 301 1/4W F		OB13064A	RD24JS-T1B2
202,208			D105-120		SID*MA221 (36)
R103,109	OB22734A	RM 28.7K 1/4W F	205-220		
203,209			301-304	OB23113A	RK* 47K 1/8W J
R104,110	OB22567A	RM 100 1/4W F	R301,303		
204,210			305,307		
R105,111	OB09491A	RM 1K 1/4W F	309,311		
205,211			313,315		
R107,113	OB22736A	RM 35.7K 1/4W F	317,319		
207,213			321,323		
R114,214	OB26027A	RM*845 1/8W F	325,327		
R115,215	OB26035A	RM*909 1/8W F	329,331		
R116,216	OB26036A	RM*976 1/8W F	333,339		
R117,118	OB26024A	RM*1.05K 1/8W F	344		
129,138			R302,304	OB23073A	RK* 1K 1/8W J
147,156			306,308		
165,174			310,312		
217,218			314,316		
229,238			318,320		
247,256			322,324		
265,274			326,328		
R119,219	OB26037A	RM*1.21K 1/8W F	330,332		
R120,220	OB26038A	RM*1.24K 1/8W F	334,340		
R121,221	OB26014A	RM*1.30K 1/8W F	341		
R122,128	OB26039A	RM*1.43K 1/8W F	R335,336	OB23097A	RK* 10K 1/8W J
137,146			R337,338	OB25053A	RM 33.2 1/4W F
155,164			R342,343	OB23101A	RK* 15K 1/8W J
173,222			C301,302	OB41772A	CSP 1000P 160V J
228,237			PC301,302	OB10186A	Photocoupler
246,255			PC303	OB10184A	TLP521-4 GB
264,273			RL101-116		Photocoupler
R123,223	OB26043A	RM*40.2K 1/8W F	201-216	OB90211A	TLP521-2 GB
R124,133	OB26042A	RM*13.0K 1/8W F			Relay FBR22ND24 (32)
142,151				— Miscellaneous —	
160,169				OB60398C	Input Selector P.C.B.
224,233				OB81034A	11P-T Post (White)
242,251				OB81033A	10P-T Post
260,269				OB81027A	4P-T Post (White)
R125,134	OB26041A	RM*5.76K 1/8W F		OB81026A	3P-T Post (White)
143,152				OB81025A	2P-T Post (White)
161,170				OB81223A	2P-T Post (White)
225,234					
243,252				OB81654A	2P-T Post
261,270					
R126,135	OB26012A	RM*3.57K 1/8W F		OB81019A	Dip Mapte 8P
144,153					WH8D-1
162,171				OB82884A	Line Input Code (8)
226,235				OB82885A	Relay Ground Code (1)
244,253					
262,271				BA06688A	Line Filter P.C.B. Ass'y (CA-7E (Germany))
R127,136	OB26040A	RM*2.21K 1/8W F			
145,154				OB60451A	Line Filter P.C.B.
163,172				OB51244A	Line Filter LF-4A (1)
227,236				OB90019A	Insu-Lock SKB-80(1)
245,254				OJ04703A	Collar Bushing
263,272					TB-300 (2)
R130,139	OB26034A	RM*619 1/8W F		OJ05008A	Collar Bushing
148,157					TA-310 10 (2)
166,175					
230,239					
248,257					
266,275					
R131,140	OB26033A	RM*392 1/8W F			
149,158					
167,176					
231,240					
249,258					
267,276					

6. SCHEMATIC DIAGRAMS

6.1. IC Block Diagrams

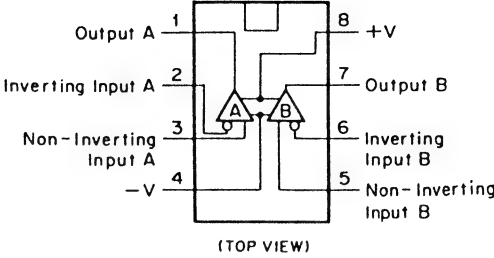


Fig. 6.1.1 Operational Amp. IC μPC812

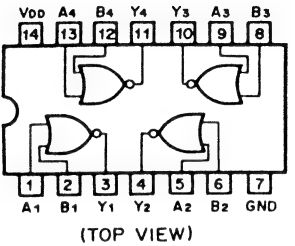


Fig. 6.1.2 NOR Gate C-MOS IC μPD4001BC

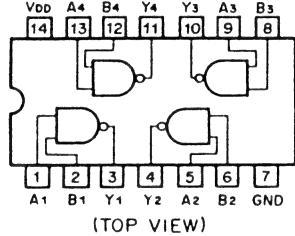


Fig. 6.1.3 NAND Gate C-MOS IC μPD4011BC

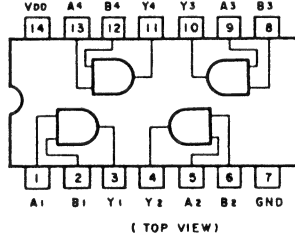


Fig. 6.1.4 AND Gate C-MOS IC μPD4081BC

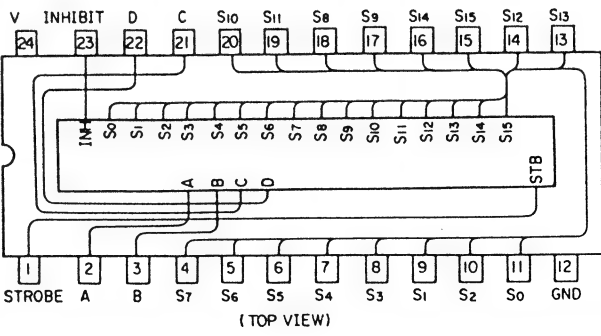


Fig. 6.1.5 4-to-16 Line Decoder IC TC4514BP

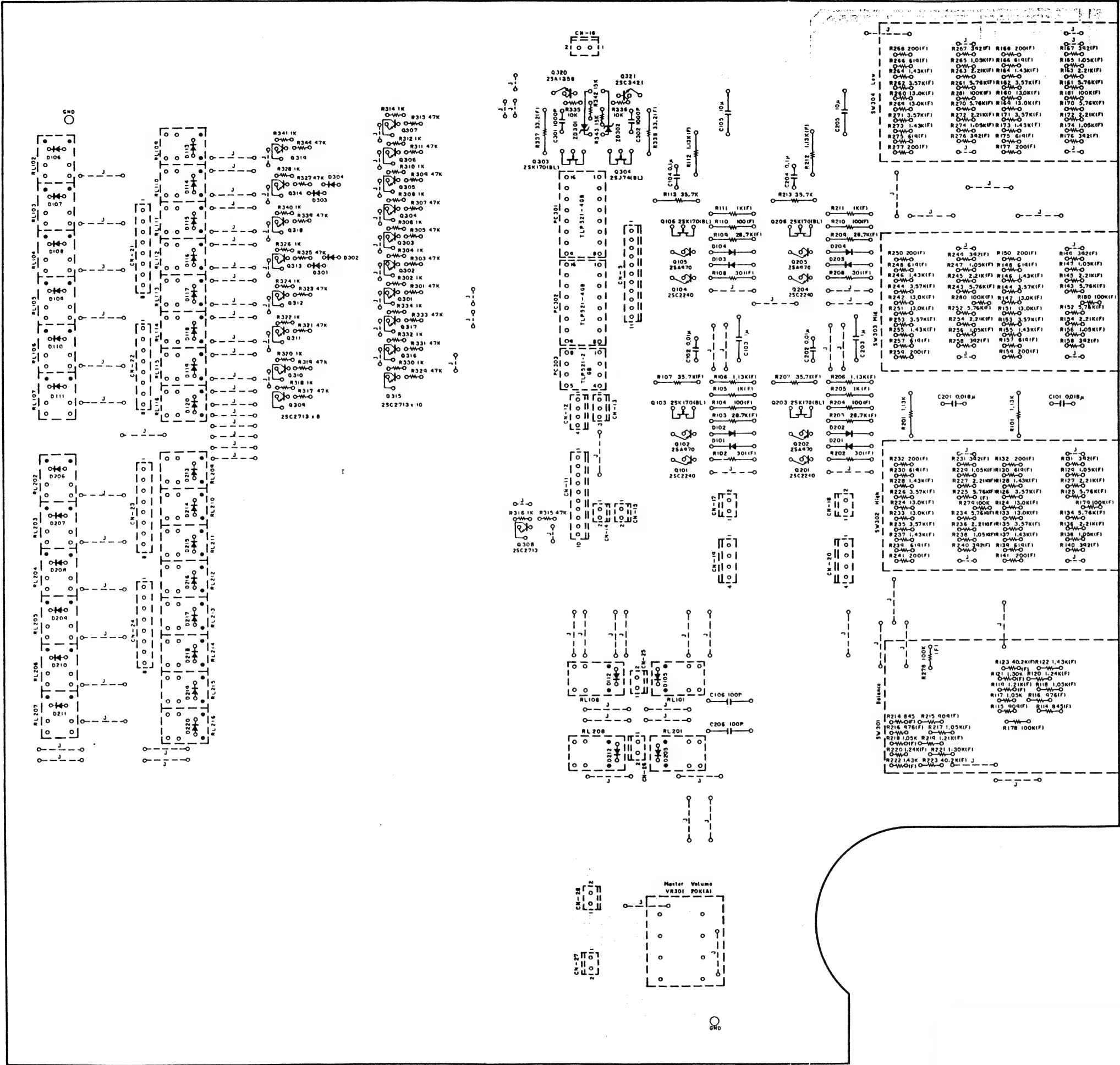


Fig. 5.14

6. SCHEMATIC DIAGRAMS

6.1. IC Block Diagrams

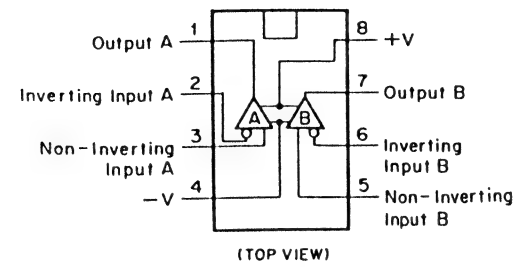


Fig. 6.1.1 Operational Amp. IC μPC812

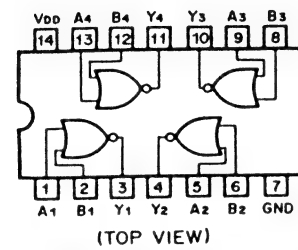


Fig. 6.1.2 NOR Gate C-MOS IC μPD4001BC

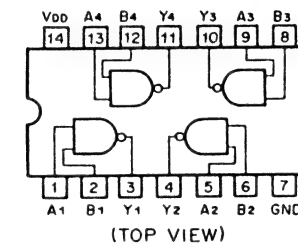


Fig. 6.1.3 NAND Gate C-MOS IC μPD4011BC

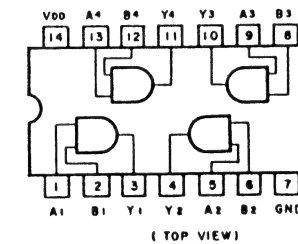


Fig. 6.1.4 AND Gate C-MOS IC μPD4081BC

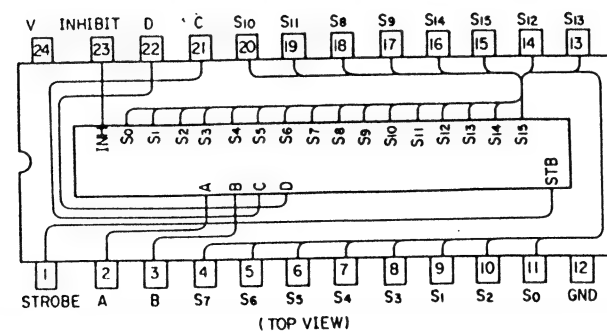


Fig. 6.1.5 4-to-16 Line Decoder IC TC4514BP

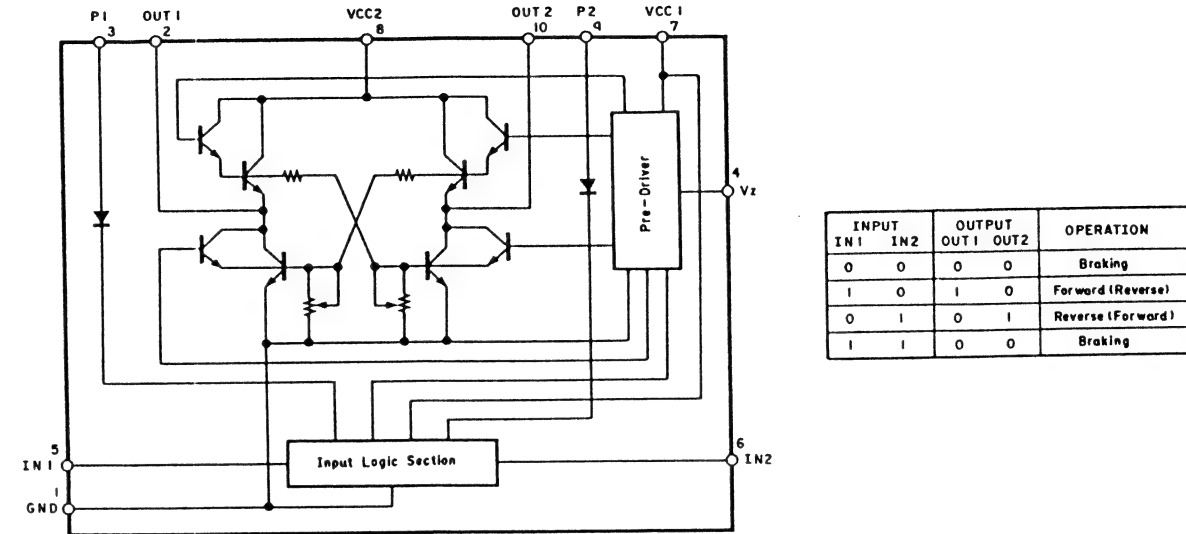


Fig. 6.1.6 Motor Control IC LB1645N

INPUT		OUTPUT		OPERATION
IN1	IN2	OUT1	OUT2	
0	0	0	0	Braking
1	0	1	0	Forward (Reverse)
0	1	0	1	Reverse (Forward)
1	1	0	0	Braking

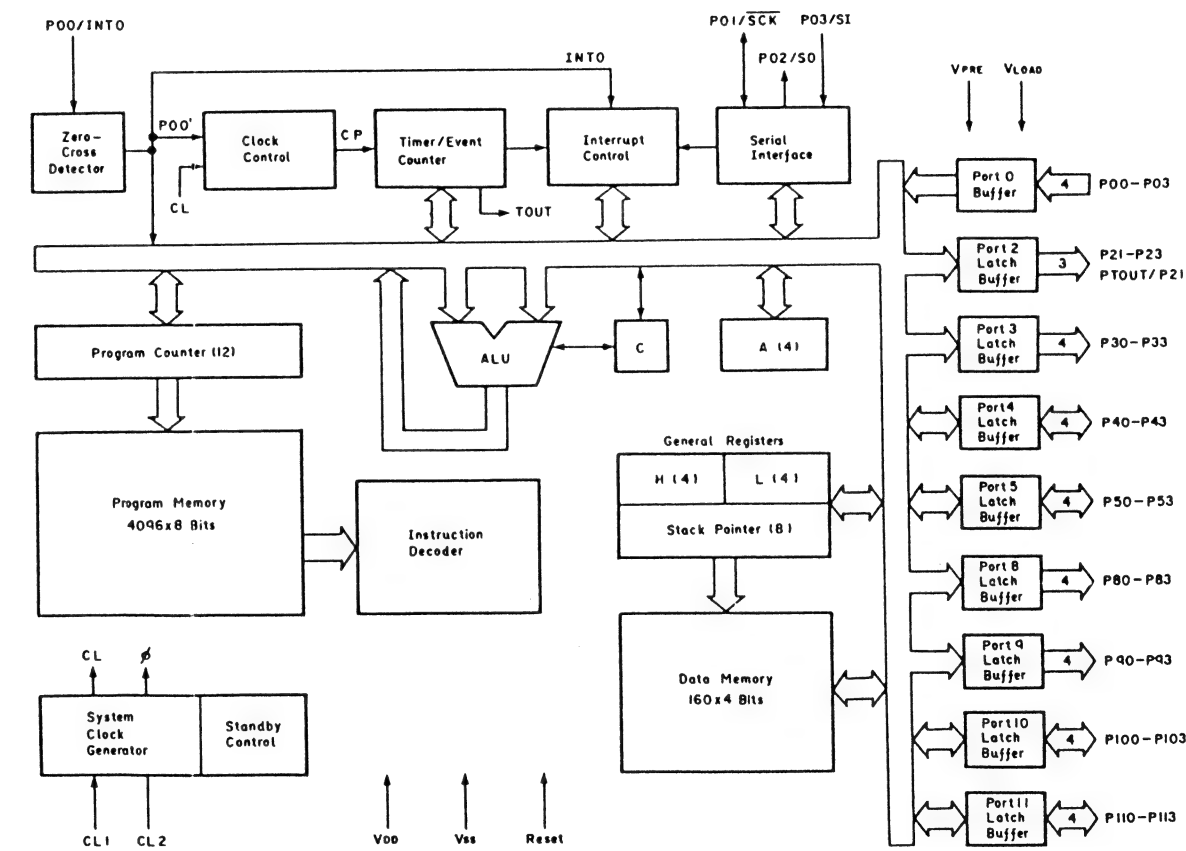


Fig. 6.1.7 Micro-processor μPD7538CU

6.2. Schematic Diagrams
6.2.1. Amplifier Section

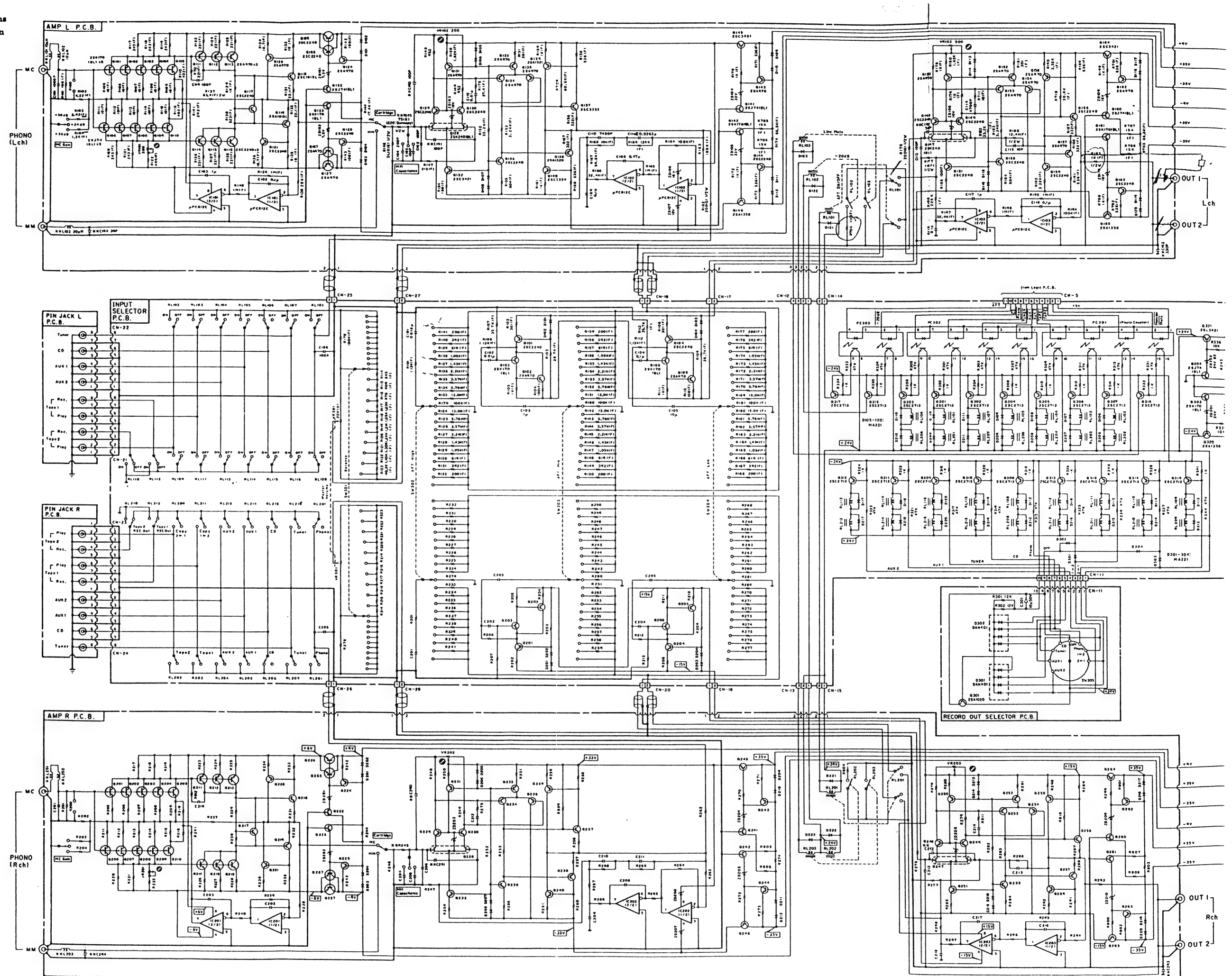
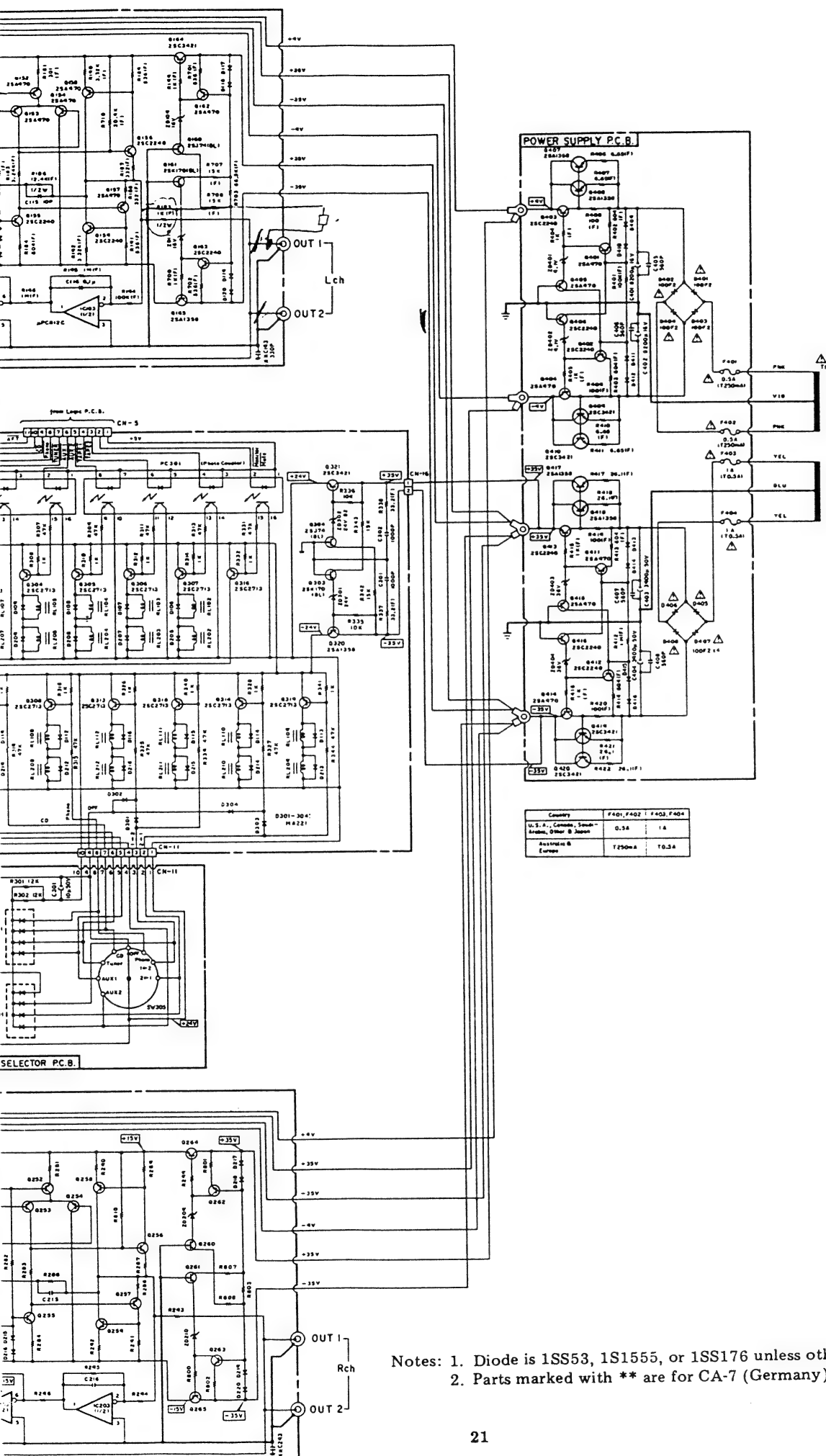


Fig. 6.2.1



Notes: 1. Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.
2. Parts marked with ** are for CA-7 (Germany)).

6.2.2. Control Section

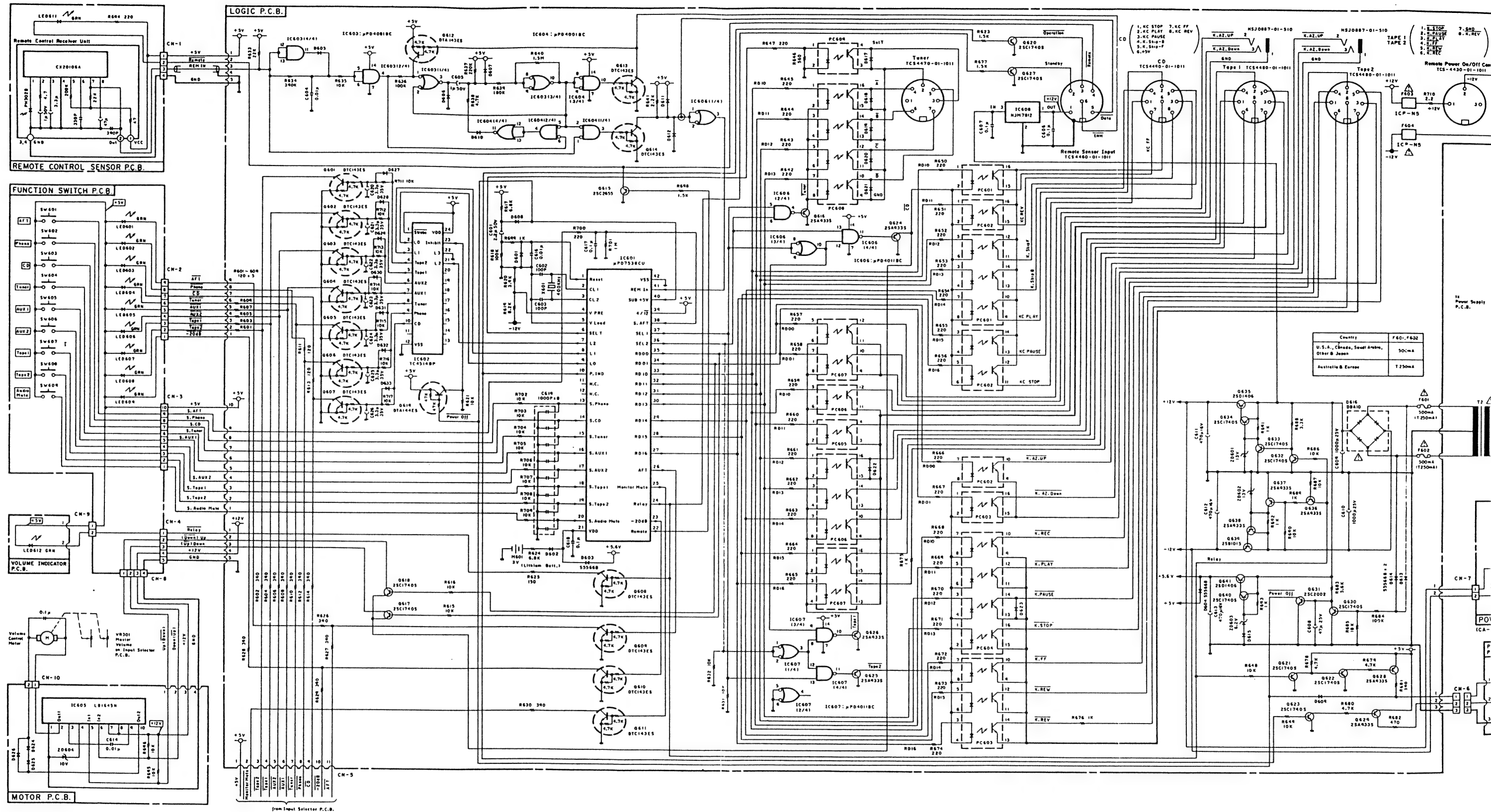
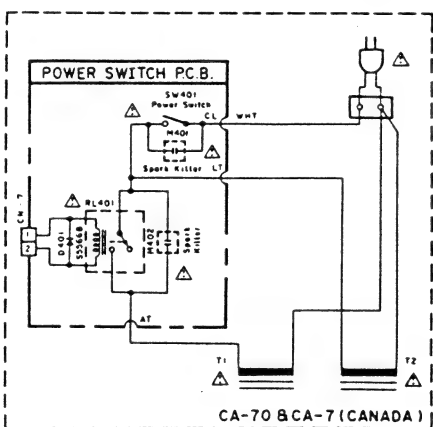
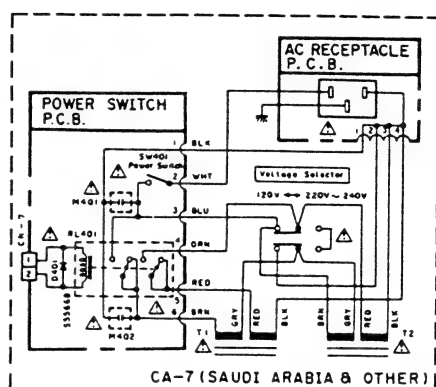
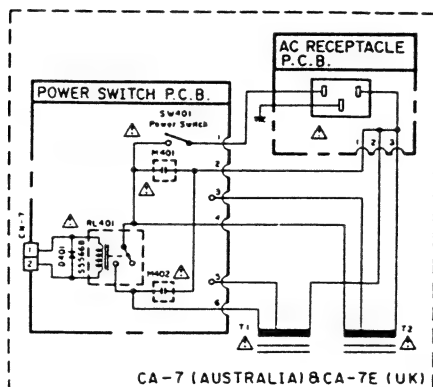
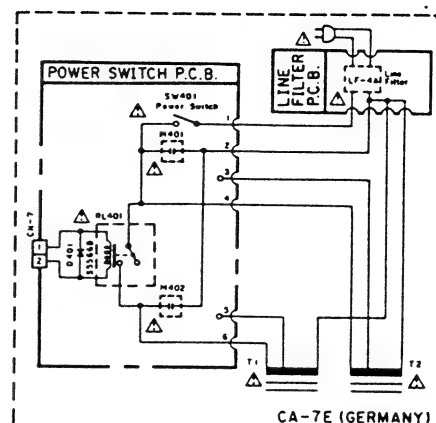
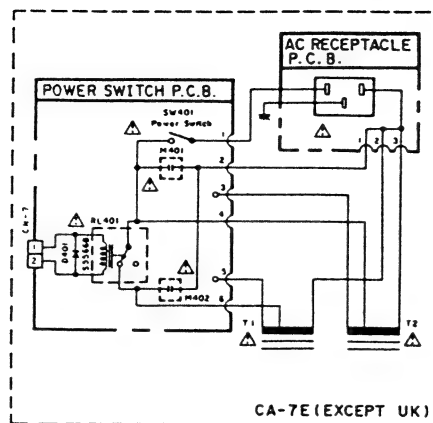
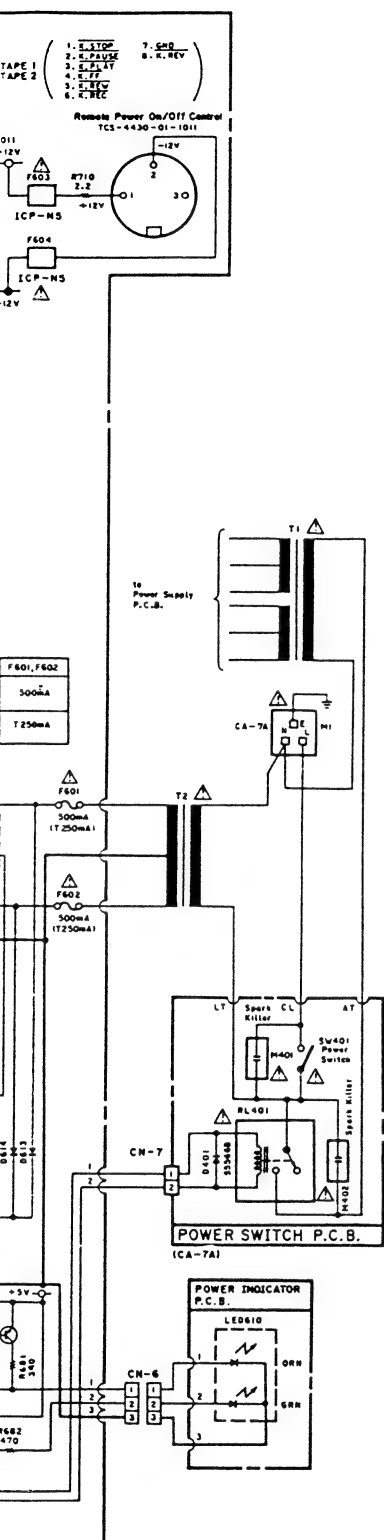


Fig. 6.2.2

Note: Diode is 1SS53, 1S1



WARNING:
Parts marked with the symbol have critical characteristics.
Use **ONLY** replacement parts recommended by the manufacturer.
It is recommended that the unit be operated from suitable DC supply or batteries during initial check-out procedures.

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a leakage current check or (2) a line chassis resistance check. If the leakage current exceeds 0 milliamp, or if the resistance from chassis to either side the power cord is less than 240 k ohms, the unit is defective.
WARNING — DO NOT return the unit to the customer until the problem is located and corrected.

diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.

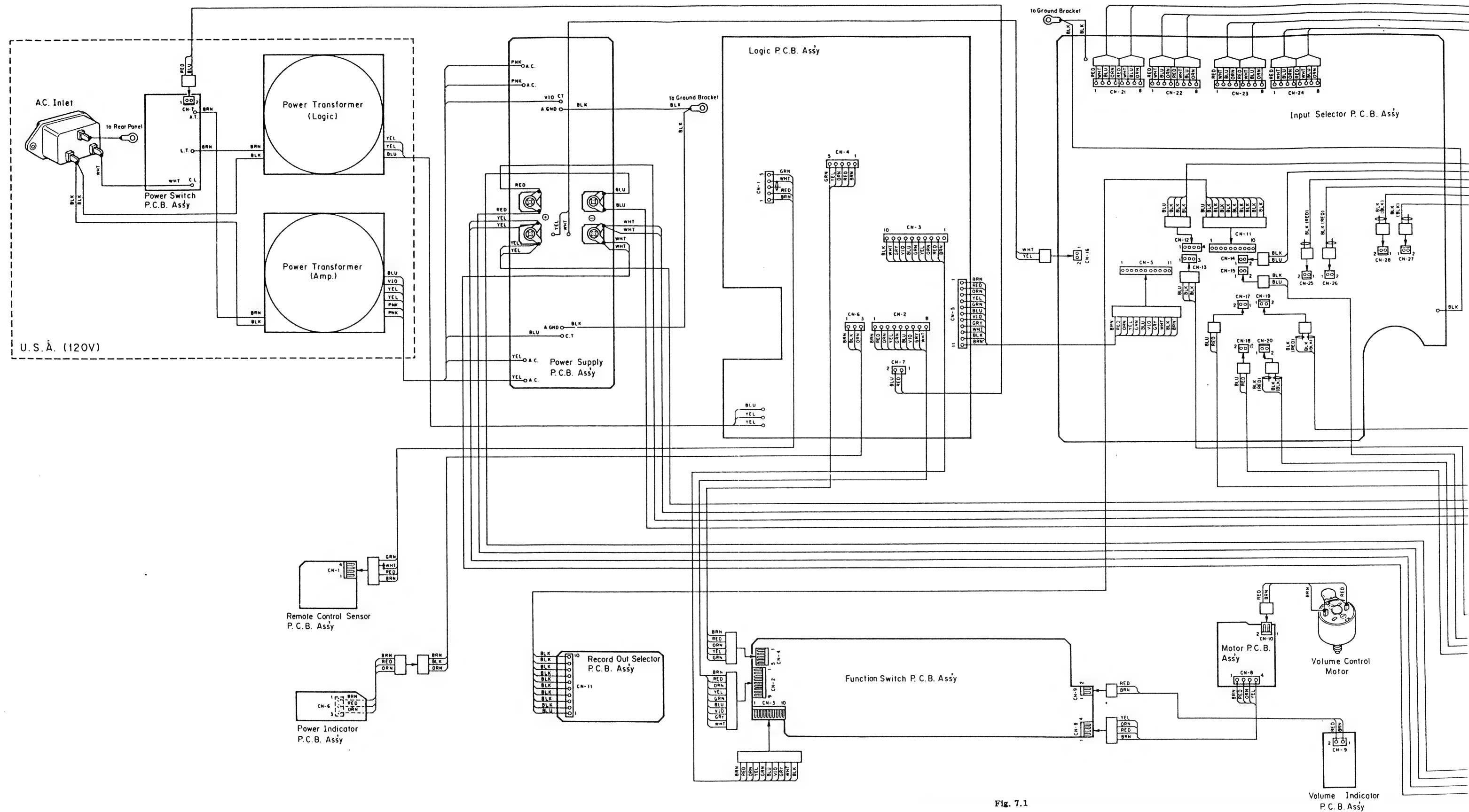
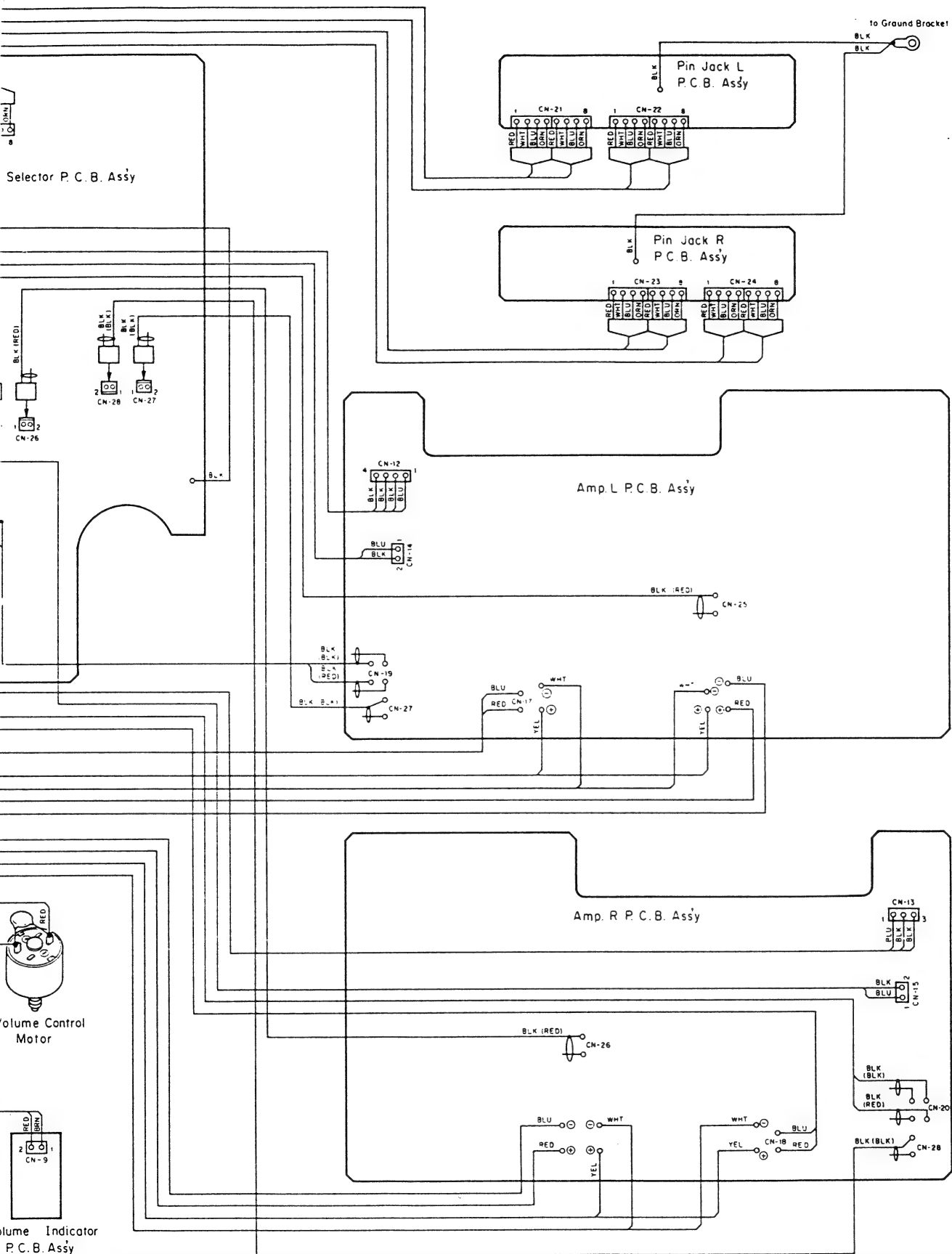
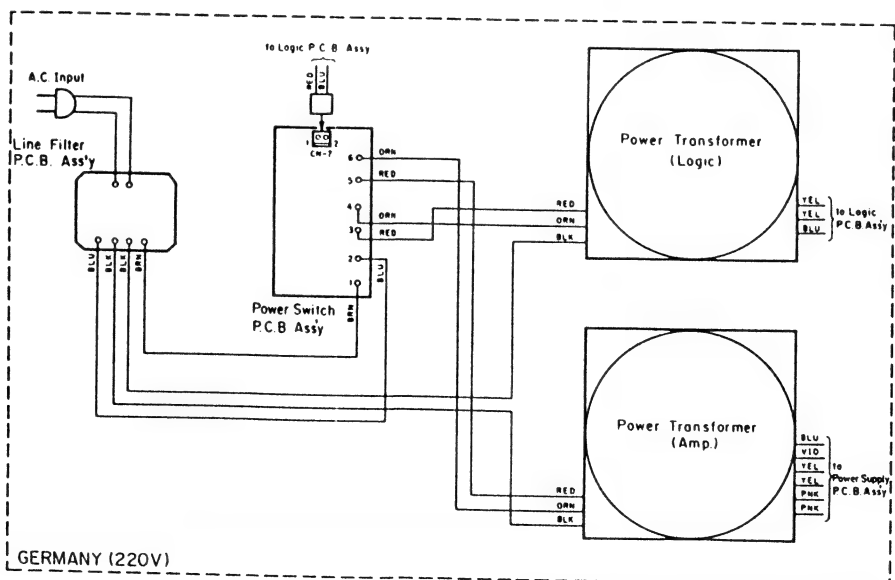
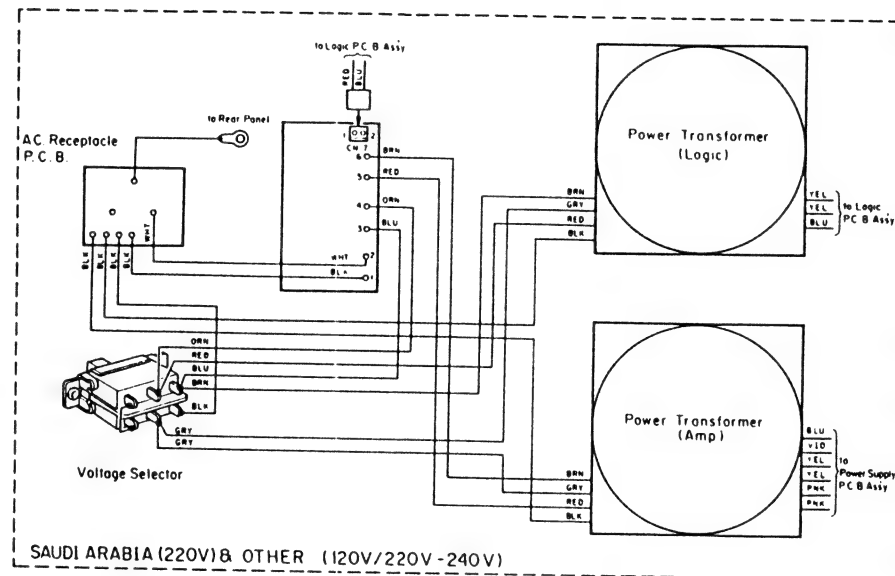
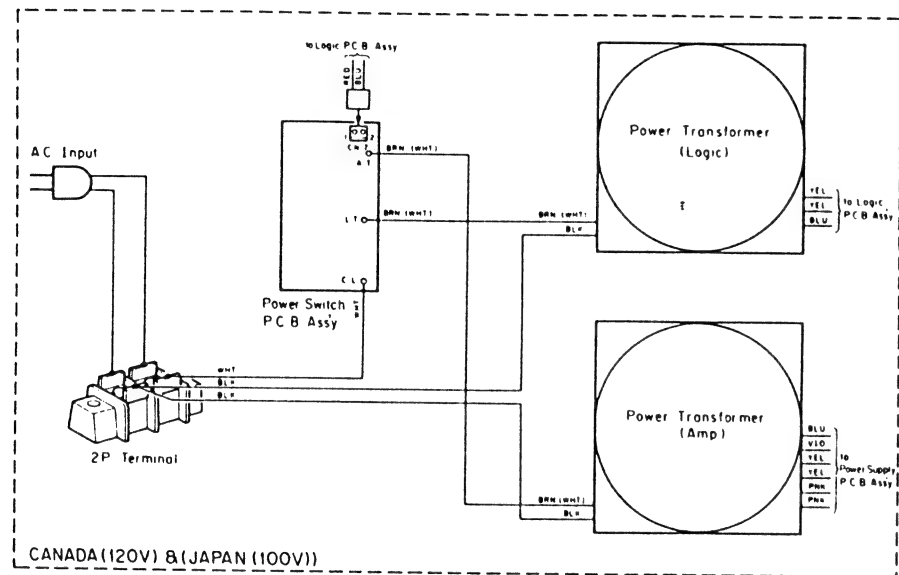
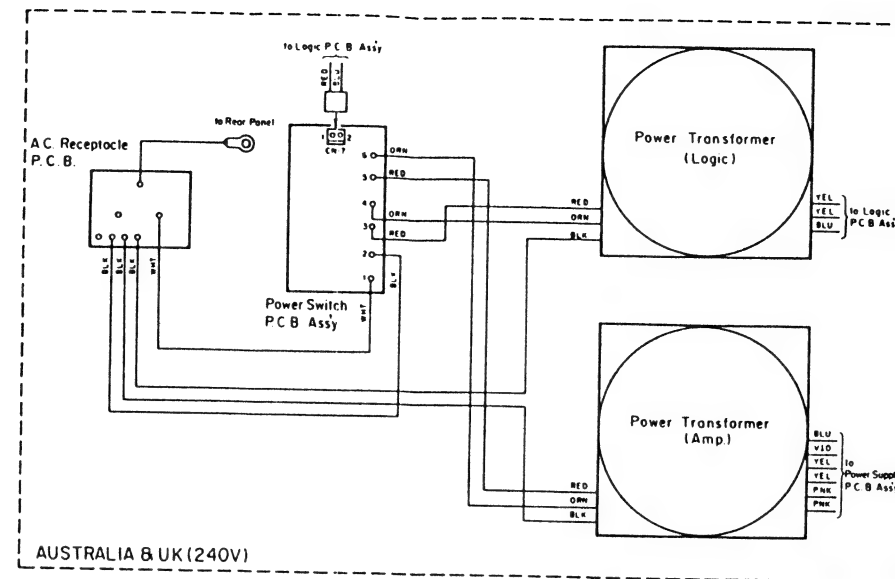
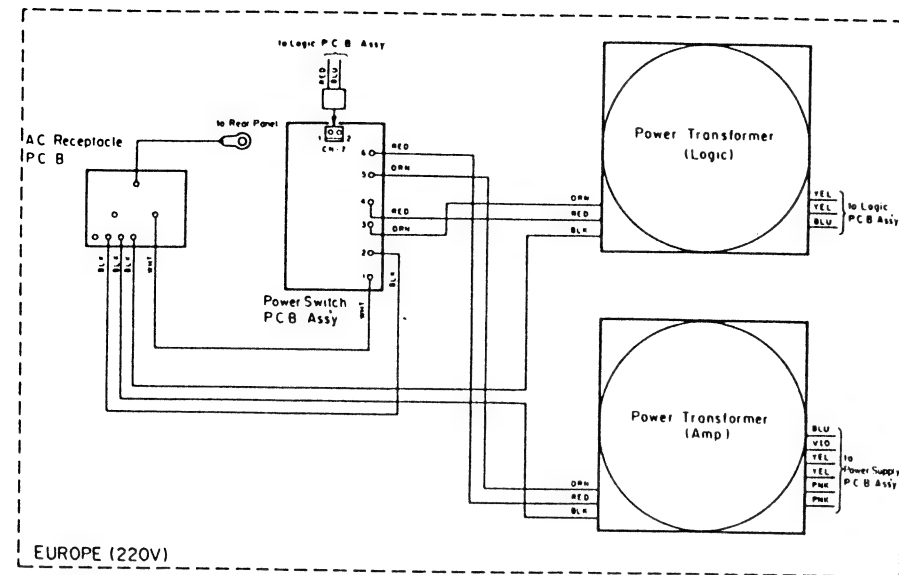


Fig. 7.1





Notes: 1. Table of wire colors

BRN — Brown	BLU — Blue	PNK — Pink
RED — Red	VIO — Violet	
YEL — Yellow	WHT — White	
ORN — Orange	GRY — Gray	
GRN — Green	BLK — Black	

2. Component side view of the P.C.B. is illustrated unless otherwise specified.
3. Wire tube color is shown in ().

Fig. 7.2

8. BLOCK DIAGRAM

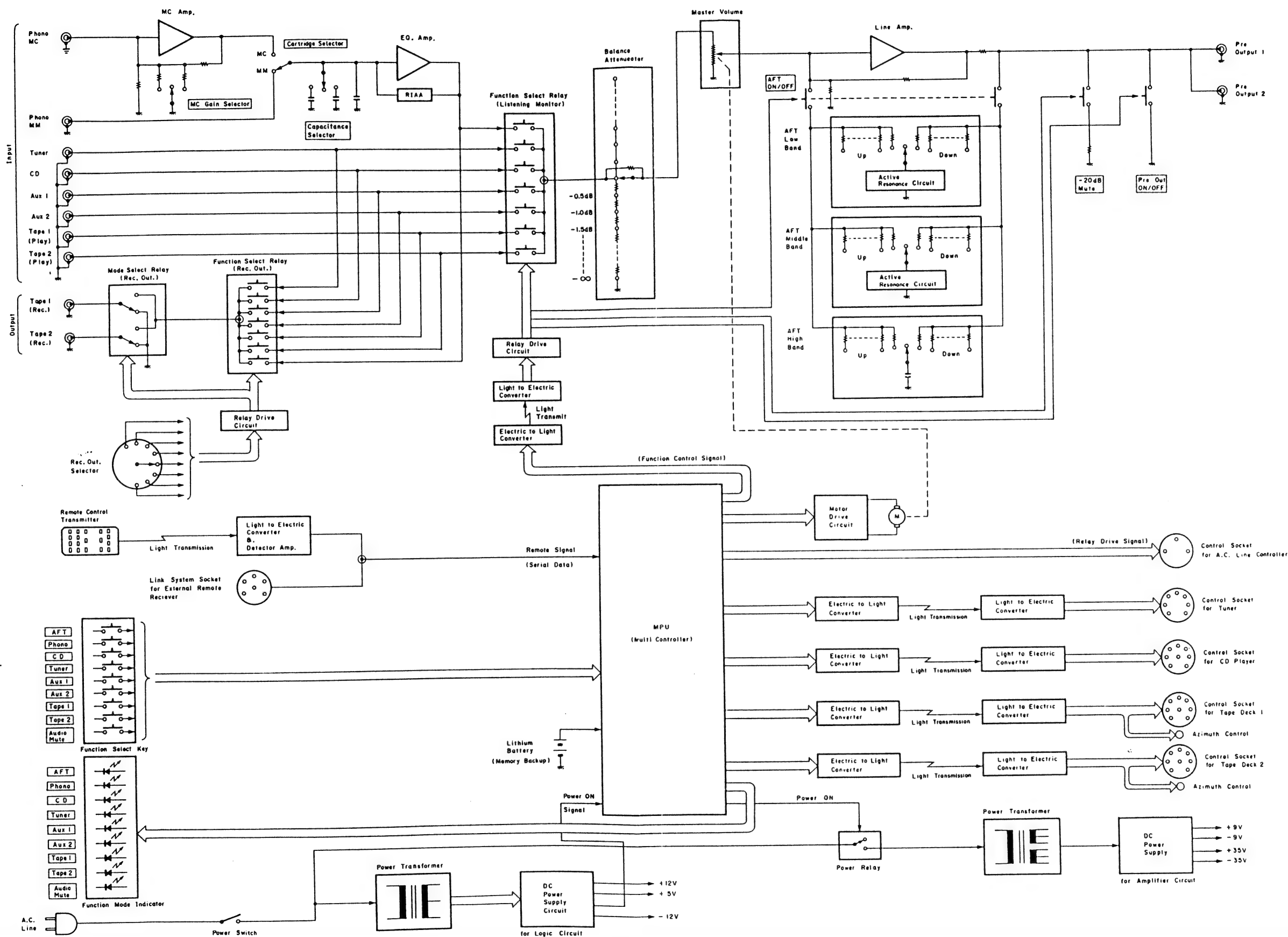


Fig. 8

9. REMOTE SENSOR RS-7 (OPTION)

9.1. Mechanism Ass'y and Parts List

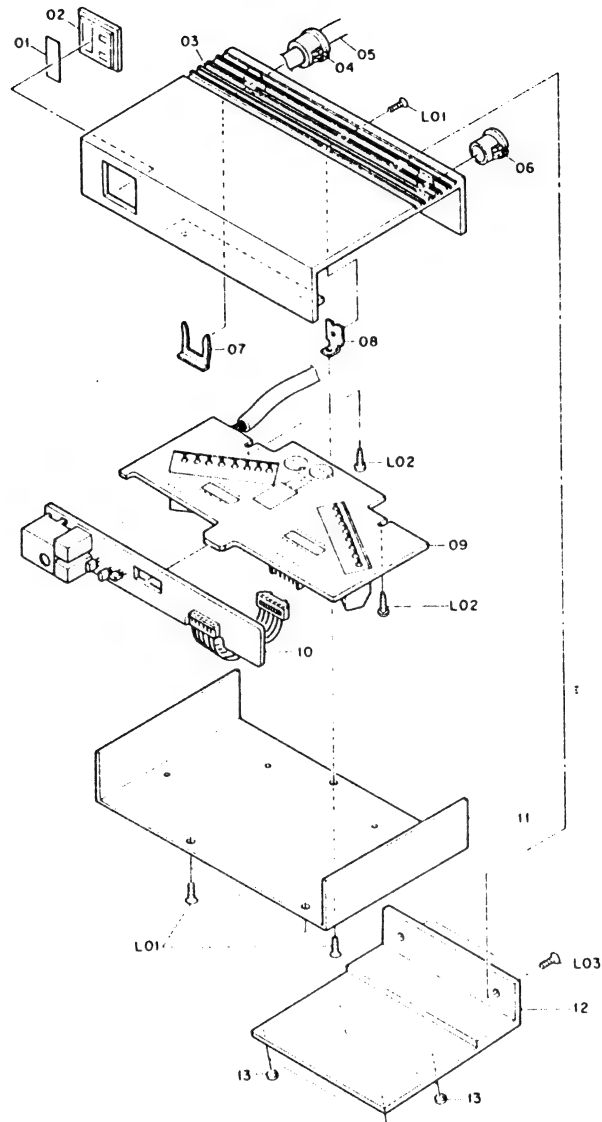


Fig. 9.1

Schematic Ref. No.	Part No.	Description	Q'ty	Schematic Ref. No.	Part No.	Description	Q'ty
	FA03577A	Package Ass'y RS-7	1		0J05301A	Snap Bushing	1
	0F04016A	Package	1		0E03404A	Anchor Nut	2
	0F04015A	Sleeve	1		0E03405A	Screw for Anchor Nut	2
	0F04017A	Partition	1		0E03402A	ST2x6 @ Binding (Black Chromate)	2
	DA04028A	Accessory Ass'y (U.S.A., Canada, Australia, Saudi Arabia & Other)	1			Remote Sensor RS-7 Serial No.: N61901001 -	
	DA04029A	Accessory Ass'y (Europe)	1	01	0J05314A	Remote Filter	1
	DA04030A	Accessory Ass'y (Japan)	1	02	0H05028A	Remote Lens	1
	0D04705A	Owner's Manual (English) (except Japan)	1	03	0H05025B	Top Cover	1
	0D04714A	Owner's Manual (French, German) (Europe)	1	04	0J05301A	Snap Bush	1
	0D04713A	Owner's Manual (Japanese) (Japan)	1	05	0B82894A	8P DIN Cord	1
	0D04449A	Important Notice Card	1	06	0J05302A	Hole Plug	1
	0D04352C	Warranty Card (U.S.A., Canada, Australia, Saudi Arabia & Other)	1	07	0J05092A	Snap Plate	1
	0D04706A	Price Card (Japan)	1	08	0J05297A	Bottom Angle	1
	0B81687A	6P DIN Plug	1	09	BA06495A	Control P.C.B. Ass'y	1
	0B81686A	Snap Plate	1	10	BA06494A	Receiver P.C.B. Ass'y	1
				11	0H05026A	Bottom Cover	1
				12	0H05027B	Unit Stand	1
				13	0J05303A	Leg	4
				L01	0E03401A	ST2x6 @ Countersunk	4
				L02	0E03402A	ST2x6 @ Binding (Black Chromate)	2
				L03	0E00940A	M3x6 @ Countersunk (Black Chromate)	2

9.2. Mounting Diagrams and Parts List

9.2.1. Receiver P.C.B. Ass'y

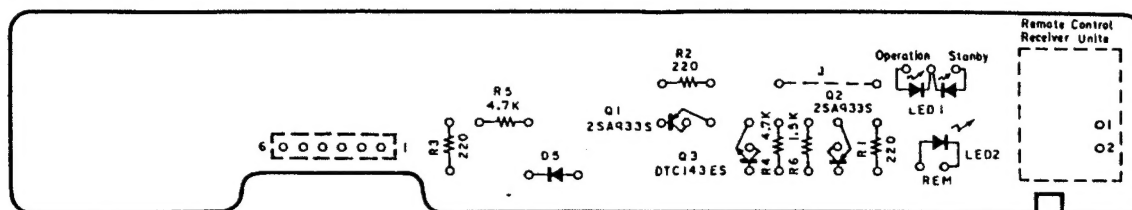


Fig. 9.2.1

9.2.2. Control P.C.B. Ass'y

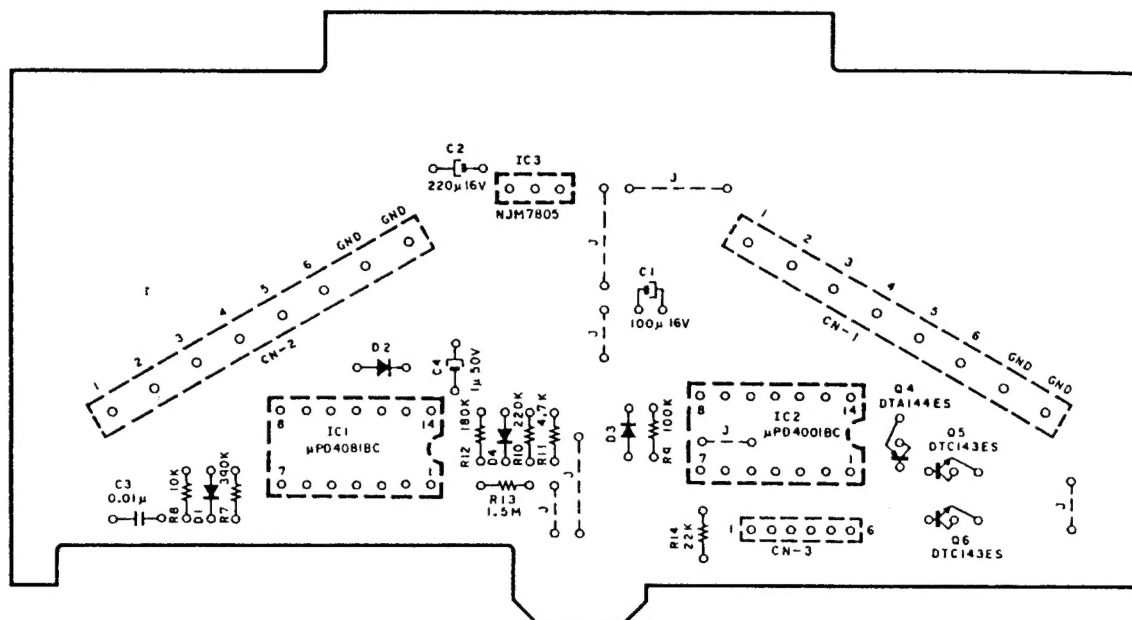


Fig. 9.2.2

Schematic Ref. No.	Part No.	Description	Schematic Ref. No.	Part No.	Description
	BA06494A	Receiver P.C.B. Ass'y		BA06495A	Control P.C.B. Ass'y
Q1,2	OB60412A	Receiver P.C.B.	IC1	OB60413A	Control P.C.B.
	OB10026A	TR 2SA933S	IC2	OB06219A	IC μ PD4081BC
Q3	OB10070A	TR DTC143ES	IC3	OB06143A	IC μ PD4001BC
LED1	OB12399A	LED SPB-26	Q4	OB11105A	IC NJM7805
		(GRN, ORN)	Q5,6	OB10053A	TR DTA144ES
LED2	OB12407A	LED SLB-26MW	D1,2,3,4	OB10070A	TR DTC143ES
		(GRN)		OB06398A	SID 1SS176
D5	OB06398A	SID 1SS176	R7	OB09739A	RK 390K 1/6W J
R1,2,3	OB09661A	RK 220 1/6W J	R8	OB09701A	RK 10K 1/6W J
R4,5	OB09693A	RK 4.7K 1/6W J	R9	OB09725A	RK 100K 1/6W J
R6	OB09681A	RK 1.5K 1/6W J	R10	OB09733A	RK 220K 1/6W J
CN3	OB82907A	6P-H Connector	R11	OB09693A	RK 4.7K 1/6W J
	OB19005A	Remote Control Receiver Unit (1)	R12	OB09731A	RK 180K 1/6W J
	OJ05244A	LED Reflector CA-7 (1)	R13	OB09380A	RK 1.5M 1/4W J
	OJ05300A	LED Reflector RS-7 (1)	R14	OB09709A	RK 22K 1/6W J
			C1	OB01400A	CE 100 μ 16V
			C2	OB01398A	220 μ 16V
			C3	OB0668A	0.01 μ 50V J
			C4	OB01400A	1 μ 50V
			CN1,2	OB816A	Terminal S-306
			CN3	OB810A	Post (White)

9.3. Schematic Diagram

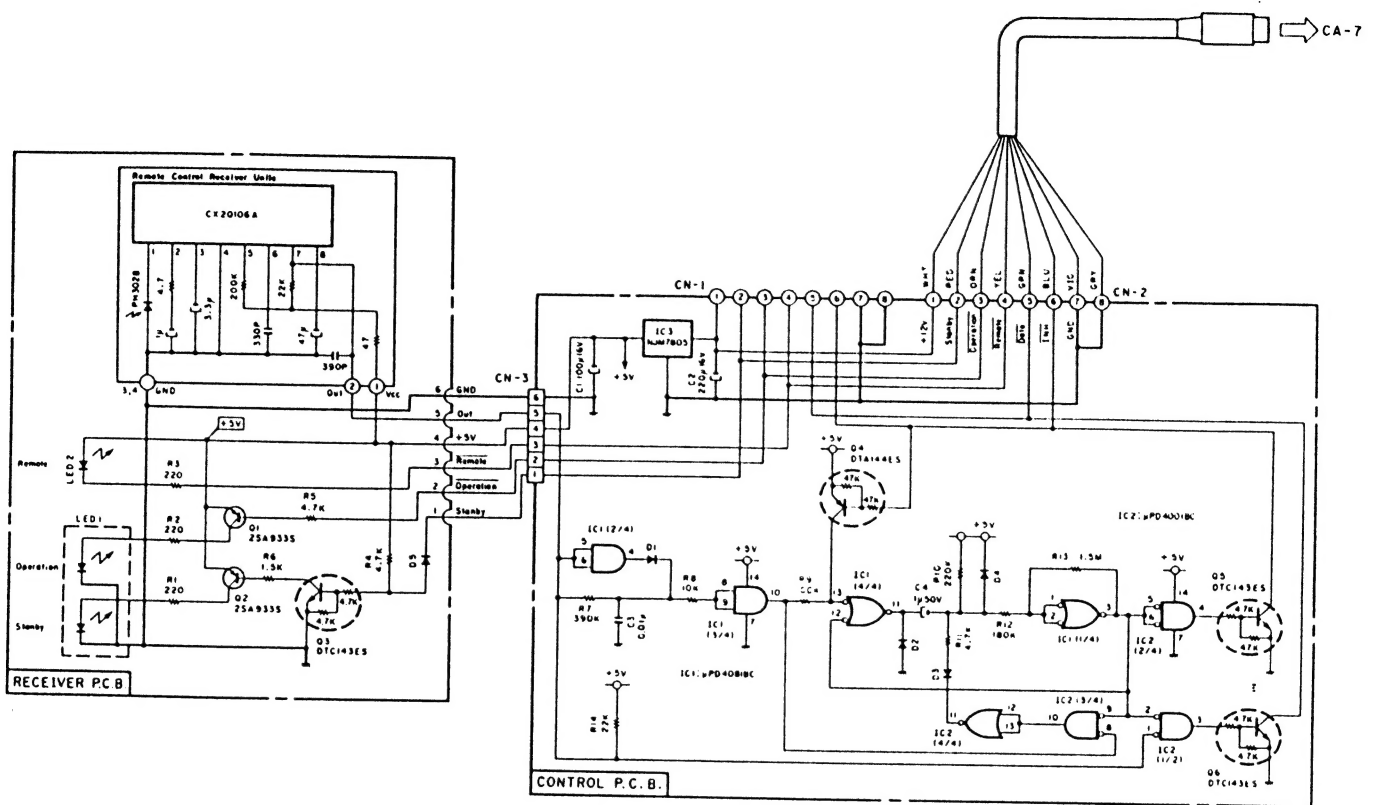


Fig. 9.3

Note: Diode is 1SS53, 1S1555, or 1SS176 unless otherwise specified.

10. SPECIFICATIONS

Input Sensitivity/Impedance

Phono MC (36 dB Gain)	40 μ V/100 ohms
(30 dB Gain)	80 μ V/100 ohms
(24 dB Gain)	160 μ V/100 ohms
Phono MM	2.5 mV/50 kohms
Tuner/CD/Aux/Tape	150 mV/12.5 kohms

Input Sensitivity (New IHF)

Phono MC (36 dB Gain)	10 μ V
(30 dB Gain)	20 μ V
(24 dB Gain)	40 μ V
Phono MM	0.625 mV
Tuner/CD/Aux/Tape	37.5 mV

Maximum Input Level (1 kHz, Non-Clipping Level, New IHF)

Phono MC (36 dB Gain)	5 mV
(30 dB Gain)	10 mV
(24 dB Gain)	20 mV
Phono MM	320 mV

Output Level/Impedance

Pre Out	2 V/1 kohms
Rec Out	150 mV/200 ohms

Maximum Output Level

(20 — 20,000 Hz, 1% THD, Pre Out, New IHF)
7V

Total Harmonic Distortion (20 — 20,000 Hz)

Phono MC to Rec Out, 1V	
(36 dB Gain)	Less than 0.004 %
(24 dB Gain)	Less than 0.002 %
Phono MM to Rec Out, 1V	Less than 0.002 %
Tuner/CD/Aux/Tape to Pre Out, 2V	Less than 0.002 %

Frequency Response

Tuner/CD/Aux/Tape	1 — 100,000 Hz + 0, —3 dB
	1 — 20,000 Hz + 0, —0.2 dB

RIAA Deviation

Phono MC	20 — 20,000 Hz \pm 0.2 dB
Phono MM	20 — 20,000 Hz \pm 0.2 dB

Signal to Noise Ratio (IHF A-WTD)

Phono MC (0.5 mV Input, 0.5 V Pre Out, Input Shorted)	
(36 dB Gain)	Better than 87 dB
(30 dB Gain)	Better than 86 dB
(24 dB Gain)	Better than 84 dB
Phono MM (5 mV Input, 0.5 V Pre Out, Input Shorted)	Better than 88 dB
Tuner/CD/Aux/Tape (0.5 V Input, 0.5 V Pre Out, Input Shorted)	Better than 94 dB

Stereo Separation (100 Hz/1 k Hz/10 k Hz)

Phono MC (0.5 mV Input, 1 V Pre Out, Input Shorted)	
(36 dB Gain)	95/100/90 dB
(24 dB Gain)	90/100/90 dB
Phono MM (5 mV Input, 1 V Pre Out, Input Shorted)	100/105/95 dB
Tuner/CD/Aux/Tape (0.5 V Input, 1 V Pre Out, Input Shorted)	120/110/100 dB

AFT (Acoustical Fine Tuning) Characteristics

Low	25 Hz \pm 5 dB (0.5 dB steps)
Mid	250 Hz \pm 5 dB (0.5 dB steps)
High	30 kHz \pm 5 dB (0.5 dB steps)

Audio Mute

Remote Power On/Off Control Output

	24 V DC
Power Source	120, 120/220-240, 220 or 240 V AC, 50/60 Hz (According to country of sale)

Power Consumption

	42 W max.
Dimensions	435 (W) x 82 (H) x 310 (D) mm 17-1/8 (W) x 3-1/4 (H) x 12-3/16 (D) inches

Approximate Weight

	7.2 kg, 15 lbs. 14 oz.
--	------------------------

Principle	Infrared pulse system
Power Supply	3 V DC (1.5 V x 2)
Dimensions	62 (W) x 18 (H) x 175 (D) mm 2-7/16 (W) x 11/16 (H) x 6-7/8 (D) inches
Approximate Weight	130 g, 5 oz. (including batteries)

- 30